

clear up the mystery which yet hangs over the ages of our gigantic Eucalypts. He has already accomplished a great work in publishing seven decades of his *Eucalyptographia*. May he be spared by a kind Providence to bring his labours to completion.

DESCRIPTIVE CATALOGUE OF THE FISHES OF AUSTRALIA.

BY WILLIAM MACLEAY, F.L.S., &c.

Part II.

DIVISION II. ACANTH. BERYCIFORMES.

Body compressed, oblong or elevated; head with large muciferous cavities, covered with thin skin only, Ventral fins thoracic, with one spine and generally more than five soft rays.

FAMILY X. BERYCIDÆ.

Genus MONOCENTRIS, Bl.

Muzzle blunt, round, protruding, with the cleft of the mouth beneath; eye moderate. Villiform teeth in the jaws and on the palatine bones, none on the vomer. Eight branchiostegals, opercles scarcely denticulated; suborbital bones with radiating ridges. Scales large and forming a coat of mail; several isolated spines before the dorsal. Ventrals with two short rays, caudal fin not forked.

Japan and Australia.

313, MONOCENTRIS JAPONICUS, Cuv. & Val.

Gunth. Cat. Fishes I., p. 9.—Bleek, Atl. Ichth. Trachich., pl. 2, f. 4.

D. 6/11. A. 10. P. 13. V. 1/2. L. lat. 13. L. transv. 2/4.

Anterior dorsal and ventral spines very strong and thick. Head shorter than the height of the body.

Port Jackson, very rare.

Genus TRACHICHTHYS, Shaw.

Muzzle very short, rounded, not protruding ; cleft of the mouth oblique ; chin prominent ; eye large. Exceedingly fine villiform teeth in both jaws, on the vomer, and on the palatine bones. Eight branchiostegals. A strong spine on the scapular bone and at the angle of the præoperculum, a small one on the operculum ; suborbital arch with radiating ridges. Scales ctenoid rather small ; abdomen serrated. One dorsal fin ; ventral with six rays ; caudal forked.

Australia and New Zealand.

314. TRACHICHTHYS AUSTRALIS, Shaw.

Gunth. Cat. Fishes I., p. 10.

D. 3/12r A. 2/10. P. 13.

Scales rough, those of the lateral line not larger ; the serrated ventral keel composed of eight scales. The height of the body not quite one half of the length between the snout and the base of the caudal.

New Holland (Gunther), Shaw's original specimen.

315. TRACHICHTHYS JACKSONIENSIS, *n. sp.*

Trachichthys australis, Castelnau, Proc. Linn. Soc., N.S. Wales, Vol. III., p. 364.

Count Castelnau when he described this fish believed it to be the *T. australis* of Shaw. It is however, evidently quite distinct, the height of the body is rather more than half the length (without caudal) and the ventral keel is composed of from nine to eleven scales. Colour reddish, cheeks darker with a light band on the posterior margin of the præoperculum. All the fins, except the pectoral, black, broadly margined with yellow.

Port Jackson.

316. *TRACHICHTHYS ELONGATUS*, Gunth.

Gunth. Cat. Fishes I., p. 10, pl. 1, fig. A.

D. 4/11. A. 3/9. V. 1/6. L. lat. about 65.

Scales rough, those of the lateral line not larger; the serrated ventral keel composed of eleven or twelve scales. The height of the body one-third of the length between the snout and the base of the caudal.

Australia, (young specimen, Gunth.) New Zealand.

Genus *BERYX*.

Muzzle short. Mouth very oblique. Eye large. Villiform teeth in the jaws and on the vomer and palatine bones. Opercles serrated, præoperculum without spine. Scales rather large. One dorsal fin; ventrals with seven or more rays; caudal forked; anal with four spines. Air-bladder simple; pyloric appendages in increased number (20-30).

Sea of Madeira, Indian and Australian Seas.

317. *BERYX AFFINIS*, Gunth.

Gunth. Cat. Fishes I., p. 13, pl. 2.—Casteln., Proc. Linn. Soc., N. S. Wales, Vol. II., p. 225.

Nannegai of the Sydney aborigines.

D. 7/12. A. 4/12-13. V. 1/7. L. lat. 41-43. L. transv. 6/12.

(For full description see Castelnau, *loc. cit.*)

East Coast of New South Wales.

Genus *MYRIPRISTIS*, Cuv.

Muzzle short, cleft of mouth oblique. Eye generally large. Villiform teeth in the jaws and on the vomer and palatine bones. Eight branchiostegals. Opercular bones serrated. Operculum with a spine, præoperculum without. Scales large, ctenoid. Two dorsal fins, scarcely united; ventrals with seven rays; caudal

forked; anal with four spines. Swim-bladder divided by a contraction; the anterior part extending to the otocrane. Pyloric appendages in moderate number.

Tropical Seas.

318. MYRIPRISTIS AUSTRALIS, Casteln.

Researches on the Fishes of Australia, p. 4.

D. 10. 1/14. A. 4/13. L. lat. 33.

Height of body contained twice and one-fourth in the length (without caudal); eye very large, a little over twice in the length of the head; the interocular space is twice and one-third in the same; the maxillary bone is not denticulated; the operculum forms posteriorly a small angle but has no spine, above the angle it is striated and the edge is crenulate. The scales are large, long, and strongly crenated. Caudal fin deeply forked. Colour silvery-pink, beneath white, each scale of the back has a broad edge of dark purple. Length four inches.

Cape York.

Genus NEOMYRIPRISTIS, Castelnau.

Scarcely differs from *Myripristis* except in its dentition, which consists of a series of small, sharp, curved teeth in each jaw, with transverse series of sharp teeth on the vomer and palatine bones.

Australia.

319. NEOMYRIPRISTIS AMENUS, Casteln.

Proc. Zool. Soc., Victoria, Vol. II., p. 99.

D. 10. 1/15. A. 4/14. V. 1/7. P. 14. C. 19. L. lat. 35.
L. transv. 9.

Height three times in the total length; head thrice and a-third in the same; eye twice and one third in the length of the head, which is very convex anteriorly; the maxillary is striated and reaches to the vertical from the centre of the orbit; the infraorbital

bone, præoperculum, and operculum are serrated, the latter has a rather long spine, beneath which are two shorter ones, over the long spine is a rather deep indent, surmounted by a spine of moderate length. Colour in spirits of a brilliant golden hue, with the back greyish, the head and fins bright yellow. Average length of specimens two and a-quarter inches.

Torres Straits.

Genus HOLOCENTRUM, Artedi.

Muzzle moderate, cleft of mouth nearly horizontal, eye large. Villiform teeth in the jaws, on the vomer and palatine bones. Eight branchiostegals. Opercular and suborbital bones serrated, operculum with two spines, præoperculum with a large spine at the angle. Scales moderate, ctenoid. Two dorsal fins scarcely united; ventrals with seven rays; caudal forked; anal with four spines, the third very long and strong. Swim-bladder simple, oval; pyloric appendages in increased number.

Tropical Seas.

320. HOLOCENTRUM RUBRUM, Forsk.

Gunth. Cat. Fishes I., p. 35.—Bleek., Atl. Ichth. Trachich. pl. 3, f. 4.

D. 11/12-13. A. 4/9. L. lat. 35-37. L. transv. 3/6. Cæc. pylor. 20. Vert. 11/16.

The height of the body is equal to the length of the head, (opercular spine included) and three and a-half times in the total length; the space between the eyes is one-fifth of the length of the head. The groove for the processes of the intermaxillary much shorter than the diameter of the eye. Operculum with two strong, prominent spines, the lower of which is the smaller. The third, fourth, and fifth dorsal spines the longest; the soft dorsal fin rather higher than the spinous; lobes of the caudal fin equal; the third anal spine very long and strong; the ventrals reach nearly to the anus and are rather longer than the pectorals.

Scales scarcely striated. Red, with eight whitish longitudinal bands; the outer edges of the caudal fin blackish; the ventrals whitish, black between the third spine and first ray.

Port Darwin.

This species has a very wide range throughout the Indian and Chinese seas, but has never been mentioned before as Australian.

Genus NEONIPHON, Casteln.

Two dorsal fins slightly united; scales adherent, large and ctenoid; body oblong; anal fin with three spines, the last of these of very great size. Opercles with long spines. Teeth numerous, villiform, none on the palatine bones; tongue smooth; ventrals with seven rays.

Australia.

321. NEONIPHON ARMATUS, Casteln.

Researches on the Fishes of Australia, p. 5.

Body elongate, somewhat convex above and almost straight beneath; height three times and two-thirds in the length without the caudal fin, head twice and three-quarters in the same; eye very large, its diameter contained three times in the length of the head, and equal to the length of the snout; lower jaw longer than the upper; suborbital bone very strongly serrated; cheeks covered with rather small scales; præoperculum finely serrated, with a long spine at the lower angle; operculum crenulated and armed on its upper part with two long spines; upper part of head naked, the frontal bones covered with radiating grooves posteriorly; space between the eyes broad, with four feeble longitudinal ridges. L. lat. 38-40. First dorsal fin with eleven spines; the third longest. Second dorsal $1/12$ high and narrow; Anal $3/9$, the third spine equal to the height of the body; caudal bilobed. Colour pink, beneath silvery, top of head and back purplish; an obscure longitudinal stripe extends from the operculum to the

base of the tail; on the back, cheeks and lower part of the body are numerous round spots, which form irregular lines, a very large black spot on the membranes between the first, second, and third dorsal spines. Length of specimen 17 inches.

Cape York.

DIVISION III. ACANTH. KURTIFORMES.

One dorsal fin only, which is much shorter than the anal, which is long. No superbranchial organ. One family only.

FAMILY XI. KURTIDÆ.

Genus PEMPHERIS, Cuv. & Val.

Body compressed, oblong; eye large; cleft of mouth oblique, lower jaw prominent, snout very short. One short dorsal fin with six spines. Anal elongate, scaly, with three spines. Scales rather small. Villiform teeth in the jaws and on the vomer and palatine bones. Seven branchiostegals; air-bladder divided into an anterior and posterior portion. Pyloric appendages in moderate number.

Indian Ocean, Australia, Tropical Pacific.

322. PEMPHERIS COMPRESSUS, White.

Gunth. Cat. Fishes II., p. 508.

D. 6/10. A. 3/36. L. lat. 68.

The height of the body is one-third of the total length; caudal fin bilobed, the upper lobe much longer than the lower. Colour rosy-brown, with a bright golden yellow lateral line, the anterior edge of the dorsal fin, and the greater part of the anal and ventrals black.

Port Jackson, Swan River.

323. PEMPHERIS MACROLEPIS, *n. sp.*

D. 4-5/12. A. 3/36. P. 16.

Height of body twice and two-thirds in the total length; eye very large, its diameter more than half the length of the head, and covered with a loose skin. Scales large, more particularly behind the pectoral fin; lateral line extending to the extremity of the tail and consisting of about sixty scales. Caudal fin moderately forked. Colour silvery, with small brown spots towards the back and tail, fins of a dullish colour. Eye yellow.

King George's Sound. Port Jackson.

Genus NEOPEMPHERIS, *nov. gen.*

Body oblong, compressed. Eye moderate; cleft of mouth large, slightly oblique; teeth very numerous, small and acute in the the jaws, on the vomer and palatine bones, with one or two series of cardiform teeth in each jaw. Scales small.

Australia.

324. NEOPEMPHERIS RAMSAYI, *n. sp.*, Plate XIV.

D. 4/16. A. 3/26. L. lat. 78. L. transv. 10/15.

Height of body about one-fourth of the total length, and length of head one-fifth; snout rounded and rather shorter than the diameter of the eye; space between the eyes convex and broader than the orbit; submandibular space narrow, that, and all parts of the head, except the front of the snout, closely covered with minute silvery scales. The spines of the dorsal fin increase in length regularly from the first to the fourth, and seem to be fixed to the front of the first ray, the rays decrease in length as they go backwards and the fin altogether has a falciform appearance; the anal is of similar shape, but longer; both fins are covered with minute scales; the caudal is moderately emarginate, the pectorals are short, so are the ventrals, which are situated just under the pectorals. The colour is silvery with the back from the muzzle to the tail of a steel blue, the line between that and

the silvery sides well defined; the first six or seven dorsal rays are deeply tipped with black. Length nine inches.

Rockingham Bay (Mr. Ramsay's collection).

Genus *KURTUS*, Bl.

Body compressed, oblong, covered with exceedingly small scales; cleft of mouth wide, oblique, with the lower jaw prominent. Præoperculum denticulated. One dorsal fin with the spines rudimentary; anal with two spines; ventrals well developed, between them a horizontal backwards directed spine. Villiform teeth in the jaw, vomer and palatine bones. Seven branchiostegals; pseudobranchiæ none. Air-bladder present, enclosed by the ribs which are dilated, convex, forming rings with each other.

East Indian Seas.

325. *KURTUS GULLIVERI*, Casteln.

Proc. Linn. Soc. New South Wales, Vol. II., 233.

Norman River (fresh water).

DIVISION IV. ACANTH. POLYNEMIFORMES.

Two rather short dorsal fins, somewhat remote from each other; free filaments at the humeral arch below the pectoral fins; head with the muciferous system well developed. One family only.

FAMILY XII. POLYNEMIDÆ.

Characters of the Division.

Genus *POLYNEMUS*, L.

Two separate dorsal fins, the first with seven or eight spines, all feeble; the soft dorsal and anal nearly equal. Bands of villiform teeth in the jaws, on the vomer, the palatine and pterygoid bones. Præoperculum serrated. Scales moderate or

rather small ; pyloric appendages sometimes in immense number.
Air-bladder of variable size and structure if present.

In most tropical seas. Entering rivers.

326. *POLYNEMUS INDICUS*, Shaw.

Gunth. Cat. Fishes II., p. 326.

D. 8. 1/13-14. A. 2/11-12. L. lat. 65. L. transv. 7/13.

Five pectoral appendages, some reaching beyond the tip of the ventral fin ; caudal lobes sometimes produced into filaments, the third dorsal spine filamentous. The distance between the root of the ventrals and the anal, longer than the head ; a small prominent spine above the angle of the præoperculum.

Port Jackson (Gunther and Castelnau).

327. *POLYNEMUS MACROCHIR*, Gunth.

Ann. and Mag. Nat. Hist., 3rd series, Vol. XX., p. 60.

D. 8. 1/12. A. 2/12. L. lat. 70.

Five pectoral appendages, three of which extend to the anal fin ; pectoral fin nearly as long as the head, the length of which is contained thrice and two-thirds in the length of the body, without the caudal fin, and is equal to the distance between the root of the ventral and the anal. A distinct spine above the angle of the præoperculum. Coloration uniform.

Port Jackson.

328. *POLYNEMUS CÆCUS*, MacL.

Proc. Linn. Soc. N. S. Wales, Vol. II., p. 354, pl. 9, fig. 1.

Port Darwin. Length 18 inches.

DIVISION V. ACANTH. SCIÆNIFORMES.

The soft dorsal fin is more, generally much more, developed than the spinous, or than the anal fin. No pectoral filaments ; head with the muciferous system well developed.

FAMILY XIII. SCIÆNIDÆ.

Characters of the Division.

Genus SCIÆNA, Cuv.

Body oblong; eye of moderate size, the space between the eyes moderately broad and slightly convex; muzzle convex, with the upper jaw overlapping the lower or with the jaws equal, and with the cleft of the mouth horizontal or slightly oblique. The outer series of the jaws generally contains larger teeth, never large canines. No barbel; the second spine of the anal fin more or less indistinct. Pseudobranchiæ; air-bladder with appendages. Pyloric appendages in small number.

All seas. Entering fresh waters.

329. SCIÆNA ANTARCTICA, Casteln.

Proc. Zool. Soc., Victoria, Vol. I., p. 100.

? *Corvina Novæ Hollandiæ*, Steind., Sitzberg ak. Wiss. Wien, 1866, 53, p. 445, tab. 5, fig. 2.

The "*Jew Fish*" of Sydney, and "*King Fish*" of Melbourne Markets.

D. 9. 1/27. A. 2/7. P. 17. L. lat. 68.

This fish is said by Dr. Gunther and others to be identical with *S. aquila* of Europe. Count Castelnau, however, points out some important differences. In *S. antarctica* the maxillary does not reach the eye, and the eye itself is proportionally smaller than in *aquila*. The coloration also differs, in the Australian fish, the back is blue changing to green, the sides and lower parts of a dirty white, rather silvery; dorsal, anal, and ventral fins reddish, pectorals whitish with their extremity dark, some sinuosities or notches at the angle of the præoperculum.

Steindachner's species is probably the same, but I have never seen the description.

East and South Coasts of Australia.

Genus CORVINA, Cuv.

Scarcely differs from *Sciæna*, except in having the second anal spine very strong.

330. CORVINA ALBIDA, Cuv. & Val.

Gunth., Cat. Fishes II., p. 304.—Casteln., Proc. Linn. Soc., N. S. Wales, III., p. 47.

D. 10. 1/24-25. A. 2/7. L. lat. 75. L. transv. 7/19.

The height of the body is nearly equal to the length of the head and four times and a-half in the total length; the snout is rather obtuse, convex, with the jaws equal in front, shorter than the diameter of the eye, which is one-seventh of the length of the head; in both jaws an outer series of larger teeth. Præoperculum slightly denticulated, superscapula crenulated, coracoid entire. The ventral and pectoral fins equal; the caudal pointed. Coloration uniform, with an indistinct streak along the centre of each scale.

Norman River; a large fish.

Genus OTOLITHUS, Cuv.

Body oblong; muzzle obtuse or slightly pointed with the lower jaw longer. Two dorsal fins, the spines feeble, anal spines small. Conical canine teeth, more or less distinct, either in both jaws, or in the upper only. Præoperculum denticulate or crenulated. Scales moderate or small. Air-bladder with a horn-like process on each side directed forwards in some, in others with numerous lateral appendages. Pyloric appendages in small number.

Tropical seas entering rivers.

331. OTOLITHUS ATELODUS, Gunth.

Ann. and Mag. Nat. Hist 1867, 3rd series, Vol. XX., p. 60.

Otolithus teraglin, Macl., Proc. Linn. Soc. N.S. Wales, Vol. V. p. 48.

I was not aware when I described this Fish under the specific name which it bears among fishermen, that Gunther had previously named it.

DIVISION VI. ACANTH. XIPHIIFORMES.

The upper jaw produced into a long cuneiform weapon.

FAMILY XIV. XIPHIIDÆ.

Body elongate, compressed, naked or covered with rudimentary dermal productions. Teeth none or rudimentary. Upper jaw sword shaped. One or two dorsal fins without a distinctly spinous portion. Ventrals absent or rudimentary and thoracic. Seven branchiostegals; pseudobranchiæ and air-bladder present; pyloric appendages in great number. Vertebrae 12-14/12.

Genus HISTIOPHORUS, Cuv. & Val.

Two dorsal and anal fins, the anterior one longest, and formed of spinous and soft rays. Ventrals reduced to a single or two or three spines. Scales none, sometimes rudimentary dermal productions. Small teeth in the jaw and on the palatine bones, none on the vomer.

Ocean Fishes.

332. HISTIOPHORUS GLADIUS, Brouss.

Gunth. Cat. Fishes II., p. 513.—Ramsay, Proc. Linn. Soc. N. S. Wales, Vol. V., p. 295, pl. 8.

Coast of New South Wales.

DIVISION VII. ACANTH. TRICHIURIFORMES.

Body elongate, compressed or band-like; cleft of mouth wide, with several strong teeth in the jaws or on the palate; the spinous and soft portions of the dorsal and anal fins are of nearly equal extent, long, many rayed, sometimes terminating in finlets; caudal fin forked, if present. One family only.

FAMILY XV. TRICHIURIDÆ.

Characters of Division.

Genus LEPIDOPUS, Gouan.

Body very elongate, band-like; cleft of mouth wide. One single dorsal fin along the whole back; caudal well developed; ventrals reduced to a pair of scales; anal spines numerous, but minute, or hidden beneath the skin. Scales none; several strong teeth in the jaws, teeth on the palatine bones; no keel on the tail. Eight branchiostegals. Air-bladder present; pyloric appendages in increased number.

All seas.

333. LEPIDOPUS CAUDATUS, White.

Gunth. Cat. Fishes II., p. 341.—Allp. Proc. Roy. Soc. Tas., 1875, p. 86.

“The *Scabbard Fish*” of English Fishermen.

D. 102-104. A. 24-25. Cæc. pylor. 23. Vert. 41/71.

The height of the body is fifteen times and a-half in the total length, caudal fin deeply forked. Anal spines in great number; minute if visible. Uniform silvery.

Tasmania.

Genus TRICHIURUS, L.

Body very elongate, band-like; tail tapering to a point; cleft of the mouth wide. One single dorsal fin along the whole back, caudal fin none; ventrals reduced to a pair of scales or entirely absent; anal spines numerous, but minute or hidden beneath the skin. Scales none. Strong teeth in the jaws, teeth on the palatine bones, none on the vomer. Seven branchiostegals. Air-bladder present; pyloric appendages in increased number.

Warm Seas of both hemispheres.

334. *TRICHIURUS SAVALA*, Cuv. & Val.

Gunth. Cat. Fishes II., p. 347.—Macl., Proc. Linn. Soc. N. S. Wales, Vol. II., p. 354.

D. 112-130.

The height of the body is thirteen to sixteen times in the total length, the length of the head six times and a-half to seven and a-quarter in the same ; the diameter of the eye is three times and a-half in the length of the snout, and equals the width of the interorbital space which is quite flat. The colour is uniform brilliant silvery white.

Port Darwin. (Macl. Mus.)

335. *TRICHIURUS HAUMELA*, Bl.

Gunth. Cat. Fishes II., p. 348.

D. 127-133.

The height of the body is fifteen to seventeen times in the total length, the length of the head is six to seven times in the same ; the diameter of the eye is twice and a-fifth in the length of the snout. Silvery, back blackish.

Port Jackson, and Newcastle.

Genus *THYRSITES*, Cuv. & Val.

Body rather elongate ; cleft of the mouth wide. The first dorsal fin continuous, with the spines of moderate strength, and extending on to the second. Two to six spurious fins behind the dorsal and anal. The greater portion of the body naked. Several strong teeth in the jaws ; teeth on the palatine bones. No keel on the tail. Seven branchiostegals. Air-bladder present. Pyloric appendages in moderate number.

Pelagic Fishes of almost all seas.

336. THYRSITES ATUN, Cuv. & Val.

Gunth. Cat. Fishes II., p. 350.

The "*Barracoota*."

D. 20. 1/10. VI. A. 1/10. VI. Vert. 37.

Ventral with one spine and five rays; the height of the body is contained eight times in the total length, the length of the head four times and a-half. The lateral line descends abruptly below the posterior part of the spinous dorsal. Coloration uniform.

Tasmania, Bass' Straits, South Coasts.

337. THYRSITES MICROPUS, M'Coy.

Ann. and Mag. Nat. Hist., 1873, 4th series, Vol. XI., p. 338.

"The *Tasmanian King Fish*."

D. 17. 4/12. VI. A. 2/11. IV. V. 1/1. P. 14. C. 22 4/4.

Height of body five times in total length to centre of caudal fin; head four times to end of lobes of the caudal; lower jaw longer than the upper; diameter of orbit one-fifth of the length of the head, and one half of the length of the muzzle; ventrals slightly in advance of base of pectorals, about a-third of the diameter of the eye in length, and with the ray bifurcate. Lateral line bifurcate, the upper branch extending from above the operculum, a little below the back, to the third finlet, the lower leaving the upper one under the fifth dorsal spine, descending with an abrupt curve nearly to the middle of the side, continuing nearly straight to opposite the middle of the anal fin, from which to the middle of the tail it describes three upward undulations. Colour brilliant lead-grey, whitish below; fins brownish. Surface of body smooth, with very minute scales imbedded in the skin. (M'Coy.)

Tasmania.

338. THYRSITES SOLANDRI, Cuv. & Val.

Gunth. Cat. Fishes II., p. 352.

D. 18. 1/8. II. A. 1/18. II.

The ventral is reduced to a single spine. The height of the body is five times and a-half in the total length. Coloration uniform.

Coast of New Holland (Cuv.)

DIVISION VIII. ACANTH. COTTOSCOMBRIFORMES.

Spines developed in one at least of the fins. Dorsal fins either continuous or close together; the spinous dorsal if present always short, sometimes modified into tentacles or into a suctorial disk; soft dorsal always long, if the spinous is absent; anal similarly developed as the soft dorsal, and both generally much longer than the spinous, sometimes terminating in finlets. Ventrals jugular or thoracic if present, never modified into an adhesive apparatus. No prominent anal papilla.

FAMILY XVI. ACRONURIDÆ.

One dorsal fin with several pungent spines anteriorly; one or more bony spines on each side of the tail; teeth compressed, truncated or lobate, closely set in a single series. Herbivorous Fishes.

Genus ACANTHURUS, Bl.

A single series of lobate incisors, which are sometimes moveable, in the jaws. A moveable spine in a groove on each side of the tail. Ventral fins composed of a spine and generally five rays. One dorsal fin, the spinous portion less developed than the soft; anal spines three. Scales minute, ctenoid, sometimes spiny. Branchiostegals five; pseudobranchiæ well developed; air-bladder large, forked posteriorly. Intestinal tract with several circumvolutions; five to seven pyloric appendages. Vertebrae 9/13.

Tropical seas.

339. ACANTHURUS TRIOSTEGUS, L.

Gunth. Cat. Fishes III., p. 327.

Teuthis australis, Gray, King's Survey Coasts of Aust. II., p. 435.

D. 9/23-25. A. 3/20. V. 1/5.

Height one half the length without caudal fin. Upper jaw with seven lobate incisors on each side; caudal spine small without posterior projecting process; the upper profile of snout concave. Caudal fin subtruncate. Reddish-violet, with five blackish brown transverse bands, the anterior of which passes through the orbit; another streak of the same colour along the median line of the snout; two brown spots one above the other on the end of the tail.

West Coast of Australia.

340. ACANTHURUS MATOIDES, Cuv. & Val.

Gunth. Cat. Fishes III., p. 339, and Ann. and Mag. Nat. Hist. 1867 Vol. XX., p. 60.

D. 9/27-28. A. 3/25-28. V. 1/5.

Height of body rather more than half the length without the caudal fin. The distance of the nostril from the edge of the upper jaw is two-thirds of the length of the head; the upper jaw with seven or eight lobate incisors on each side; caudal spine with a process posteriorly pointing backwards; upper profile of snout convex in adult specimens. Colour brown; the dorsal and anal fins with dark blue longitudinal streaks.

Nicol Bay (Günther).

341. ACANTHURUS ANNULARIS, Cuv. & Val.

Casteln. Researches on the Fishes of Australia, p. 29.

Height of body half the length without the caudal fin; the distance from the edge of the upper jaw is less than two-thirds of the length of the head; teeth very strongly crenulated, caudal

spine small, pointed forwards; the anterior profile is nearly straight; caudal fin very strongly emarginate. Black, with a bluish white band on the base of the tail, the upper and lower margins of the tail and the upper margin of the pectorals are of the same colour. Length six inches.

Cape York.

Dr. Gunther thinks this species is only the immature form of *A. matoides*. Count Castelnau regards them as quite distinct.

342. *ACANTHURUS GRAMMOPTILUS*, Richards.

Ann. and Mag. Nat. Hist. 1842, IX., p. 176.—Gunth., Cat. Fishes III., p. 335.

D. 9/20. A. 3/24.

Height of body two-sevenths of the length without the caudal fin; profile of snout rather convex; nine lobate teeth on each side of the upper jaw. Brown, with numerous undulated and irregular bluish longitudinal lines; a whitish band across the basal portion of the caudal fin, posterior half of the pectoral yellowish; dorsal fin with five dark longitudinal lines; anal with a light line along and within the margin; dorsal and anal fins with a black spot posteriorly.

Port Essington, Port Darwin.

Genus *ACRONURUS*, Cuv. & Val.

A single series of lobate incisors in the jaws. A moveable spine in a groove on each side of the tail. Scales none; skin with vertical striæ. Five branchiostegals.

Tropical Seas.

343. *ACRONURUS FORMOSUS*, Casteln.

Proc. Zool. Soc., Victoria, Vol. II., p. 104.

D. 9/30. A. 3/27.

Height of body three-fifths of the length without the caudal fin; head three times and a-third in the same; the eye twice and two-thirds in the head. The body is very compressed forming a broad oval; the anterior profile of the head convex, the crest over the orbit serrated; the lateral line is elevated, forming a ridge, sinuous and curved strongly downwards towards the end of the dorsal fin, to arch a little over the caudal spine. The tail is forked, the ventral fins have six rays. Colour reddish-brown, all anterior to the base of the pectorals of a golden colour, four series of large rounded black blotches on the back. From one to two inches in length.

Torres Straits (Castelnau).

Genus PRIONURUS, Lacep.

A single series of compressed denticulated incisors in each jaw. Tail with a series of several keeled, bony laminæ on each side. Scales minute. Branchiostegals five. Air-bladder large, forked posteriorly. Intestinal tract with several circumvolutions; pyloric appendages five.

Pacific Ocean.

344. PRIONURUS MICROLEPIDOTUS, Lacep.

Gunth. Cat. Fishes III., p. 347.

D. 8/22. A. 3/21. V. 1/5. Cæc. pylor. 5.

Snout moderately produced with the upper profile straight. A series of six laminæ on each side of the tail; a pair of small ones above and another below that series. Uniform brown or blackish-brown.

Port Jackson.

Genus NASEUS, Cuv. & Val.

A single series of slightly compressed incisors, sometimes denticulated, in the jaws. Tail with two (rarely one or three)

bony plates, distinct and sharply keeled in adults, indistinct or absent in young specimens. Head sometimes with a horn or crest-like prominence. Ventrals 1/3. Dorsal spines four to six; anal two. Scales minute, rough like shagreen.

Indian and Polynesian Seas.

345. *NASEUS UNICORNIS*, Forsk.

Gunth. Cat. Fishes III., p. 348.

D. 5-6/31-28. A. 2/26-27. Cæc. pylor. 7-8. Vert. 9/12.

Forehead produced in a horn-like protuberance, longer or shorter according to age, horizontal, and on a level with the upper part of the orbit. Snout produced beyond the tip of the horn; the length of its upper profile, taken from the base of horn, is more than twice the distance of the orbit from the first dorsal spine. Teeth lightly compressed, tapering, not serrated. Height of body two-fifths of the length without caudal fin. Two spiniferous plates on each side of the tail. Brownish grey; dorsal and anal fins with longitudinal blue stripes.

Torres Straits (Chevert Exp.)

346. *NASEUS ANNULATUS*, Quoy & Gaim.

Gunth. Cat. Fishes III., p. 352.—All. and MacL., Proc. Linn. Soc. New South Wales, Vol. I., p. 340.

D. 5-6/28-29. A. 2/28-29. Cæc. pylor. 5.

Forehead with a projecting protuberance, situated below the level of the centre of the orbits. Snout moderately produced; teeth very small, with a very fine serrature on the apical half; caudal plates very small, scarcely keeled. Brown; anal fin with one or two bluish longitudinal bands, dorsal and anal with a narrow, and caudal with a rather broad, white edge. Young specimens have a white ring round the tail.

Cape Grenville (Chevert Exp.)

FAMILY XVII. CARANGIDÆ.

Body generally compressed, oblong, or elevated, covered with small scales or naked. Dentition variable. The spinous portion of the dorsal fin sometimes rudimentary, the soft dorsal and anal of about equal size. Ventrals thoracic sometimes rudimentary. Vertebrae 10/14.

Genus TRACHURUS, Cuv. & Val.

Body oblong, slightly compressed, covered with very small scales; the lateral line with a band of high plates from beginning to end. Snout extended. Two dorsal fins with a horizontal anterior spine; anal with two spines, separate from the soft portion. No finlets. Teeth minute in the jaws and on the vomer and palatine bones. Seven branchiostegals; pseudobranchiæ; air-bladder bifurcate posteriorly. Pyloric appendages in small number.

All Seas.

347. TRACHURUS TRACHURUS, Cuv. & Val.

Gunth. Cat. Fishes II., p. 419.

Caranx declivis, Jenyns., Zool. Beagle Fishes, p. 68, pl. 14.

Horse Mackerel of England; the *Yellow Tail* of Sydney.

D. 8. 1/33. A. 2. 1/29. L. lat. 75.

The height of the body is about one-fifth of the total length, the length of the head a little less; the snout is longer than the diameter of the eye, the maxillary reaches to, or slightly beyond the vertical from the anterior margin of the eye; the lateral line becomes straight and strongly armed beneath the eighth dorsal ray. A black blotch on the posterior margin of the operculum; tail yellow.

Coasts of New South Wales, Victoria, and Tasmania.

Genus CARANX, Cuv. & Val.

Body more or less compressed; mouth moderate. The first dorsal fin continuous with feeble or rudimentary spines, a spine directed forwards in front; two anal spines separated from the soft portion. Scales very small, lateral line with an anterior curved and a posterior straight portion, the latter with strongly armed or keeled scales. Dentition feeble. Seven branchiostegals; air-bladder simple, bifurcate posteriorly; pyloric appendages in great number.

Almost all temperate and tropical seas.

348. CARANX NOBILIS, *n. sp.*

D. 7. 1/25. A. 2/23.

The height of the body is from three and a-half to four times in the total length, the length of the head is a little less than the height of the body; the profile is slightly convex above the eye and slightly concave above the snout. The maxillary bone does not nearly reach the vertical from the eye, and its upper posterior angle fits into a notch in the præorbital bone. Teeth very small, an outer series of small molar-like ones in the upper jaw; none on the palate. Eye moderate, about equidistant from the snout and the extremity of the operculum, and about four diameters apart. Breast scaly. The lateral line slightly bent, the keeled plates commencing close to the tail. The pectoral fin reaches to the sixth anal ray. The soft dorsal and anal fins are low and can be completely received into a skinny sheath, the last ray of each is longer than the others and semi-detached; the caudal fin is forked, the lobes long, spreading, and pointed. The general colour is a silvery-yellow, with a bluish tint on the back. The opercular spot apparently wanting; the fins are yellow, excepting the caudal which is blackish on the outside. Length 24 inches.

Port Jackson.

349. *CARANX MALABARICUS*, Bl.

Gunth. Cat. Fishes II., p. 436.

D. 8. 1/21-22. A. 2. 1/17. L. lat. 25-30.

Teeth in the jaws, minute, villiform, arranged in bands; teeth on the vomer, palatine bones, and tongue. Height of body twice and a-quarter to twice and three quarters in the total length. the length of the head three and two-thirds to four-times. Snout obtuse, rather longer than the diameter of the eye; lower jaw longer than the upper: the maxillary bone reaches to or slightly beyond the vertical from the anterior margin of the eye; the præorbital above the angle of the mouth not so high as the orbit. Breast naked, the lateral line moderately bent, becoming straight behind the middle of the second dorsal; the plates little developed. Fins pointed without filiform ray. Opercular spot brown; the dorsal and anal fins with a brown margin, ventrals and anal whitish.

Australia, (Macgillivray's collection.)

350. *CARANX GEOBGIANUS*, Cuv. & Val.

Gunth. Cat. Fishes II., p. 440.—Richards, Fishes Ereb. & Terr., p. 135, pl. 58, fig. 1-3.

“*White Trevally*” of the Sydney Fishermen.

D. 8. 1/26-29. A. 2/1/22-24. L. lat. 20-25.

Teeth small in the jaws and on the vomer, palatine bones and tongue. Height of body three and a-third to three and three-quarter times in the total length, the length of the head four to four and a-half. Upper jaw a little the longer; the maxillary does not quite reach the vertical from the anterior margin of the orbit. Breast scaly; the lateral line follows the curvature of the back and becomes straight below the middle of the soft dorsal; the plates little developed. Opercular spot and top of spinous dorsal black.

All Australian Seas.

351. *CARANX LEPTOLEPIS*, Cuv. & Val.

Gunth. Cat. Fishes II., p. 440.

D. 8. 1/24-26. A. 2. 1/20-23. L. lat. 25-30.

Teeth of tongue and lower jaw minute, none in the upper jaw, or on the vomer and palatine bones. The height of the body is nearly four times in the total length, the length of the head nearly four and a-half. The jaws are equal, and the maxillary just reaches the vertical from the anterior margin of the eye. Breast scaly; the lateral line moderately bent and becoming straight under the middle of the soft dorsal, the plates little developed and scarcely armed.

Australia, (Macgillivray's collection).

352. *CARANX CHEVERTI*, All. & MacI.

Proc. Linn. Soc. N. S. Wales, Vol. I., p. 324, pl. 10, f. 1.

Katow, South Coast of New Guinea.

353. *CARANX LATICAUDIS*, All. & MacI.

Proc. Linn. Soc. N. S. Wales, Vol. I., p. 325, pl. 10, fig. 2.

Hall Sound, South Coast New Guinea.

354. *CARANX PAPUENSIS*, All. & MacI.

Proc. Linn. Soc. N.S. Wales, Vol. I., p. 325, pl. 10, fig. 3.

Hall Sound, South Coast New Guinea.

355. *CARANX BUCCULENTUS*, All. & MacI.

Proc. Linn. Soc. N.S. Wales, Vol. I., p. 326, pl. 11, fig. 1.

Cape Grenville.

356. *CARANX EDENTULUS*, All. & MacI.

Proc. Linn. Soc. N.S. Wales, Vol. I., p. 327, pl. 11, fig. 2.

Percy Islands.

357. *CARANX SPECIOSUS*, Forsk.

Gunth., Cat. Fishes II., p. 444.

Caranx pooloosoo, Rickards, Voy. Ereb. and Terr., pl. 58, f. 4—5.

D. 7. 1/18-20. A. 2. 1/15-16. L. lat. 15.

Teeth none or imperceptible; height of body one-third of total length; the length of the head one-fourth; breast scaly; the lateral line is bent and becomes straight below the anterior third of the soft dorsal; the plates are small. The lower jaw shorter than the upper, the maxillary reaches the vertical from the anterior margin of the eye. Silvery, with six brown vertical bars, with six narrower stripes between; the first bar through the eye. Adult specimens uniform.

Torres Straits. (Small specimens Chevert Exp.)

358. *CARANX HIPPOS*, L.

Gunth. Cat. Fishes II., p. 449.

Caranx paraspistes, Richards, Voy. Ereb. and Terr., Ichth., p. 136, pl. 58, f. 6-7.

D. 7-8. 1/19-22. A. 2, 1/16-17. L. lat. 30-36.

Teeth of upper jaw in a villiform band with an outer series of stronger teeth, lower jaw with a single series of small teeth, intermixed with larger. Height of body three-times and a-fifth in the total length; the length of the head four times, and the length of the pectoral fin three and three-quarters. Breast scaly, the lateral line strongly bent, the straight portion begins abruptly below the third dorsal ray and the plates are strongly developed. The lower jaw is longer than the upper and the maxillary extends to below the centre of the eye. Opercular spot none, or indistinct; top of the second dorsal fin blackish.

All the Coasts and Seas of Australia.



359. *CARANX VALENCIENNEI*, Casteln.

Proc. Zool. Soc., Victoria, Vol. II., p. 102.

D. 8. 1/23. A. 2. 1/20.

Præoperculum very lightly serrated ; a series of villiform teeth in the jaws, with an outer series of larger teeth ; teeth on the palate. Height of body twice and two-thirds in total length ; length of head three times and two-thirds in the same ; the orbit three times and three-fourths in the length of the head ; the snout is longer than the diameter of the eye ; the lower jaw is longer than the upper ; the maxillary does not nearly reach the vertical from the anterior margin of the eye. The straight portion of the lateral line is nearly half the length of the curved, is strongly armed, and consists of forty six shields. Colour gilt, with the upper part light blue ; fins yellow ; no opercular spot ; a short oblique ridge on each side of the tail.

Knob Island, Torres Straits.

360. *CARANX GERVAISI*, Casteln.

Researches on the Fishes of Australia, p. 18.

Height of body one-fourth of the total length ; head contained three times and a-half in the same ; diameter of eye a little over three times in the length of the head ; teeth small, equal in both jaws ; a longitudinal keel strongly denticulated on the palate ; body elongate ; lower jaw longer than upper ; lateral line strongly arched under the first dorsal fin, the straight part formed of very broad plates, nearly one-third the height of the body, and keeled. Colour silvery, becoming slate-colour on the back ; opercular spot visible ; fins hyaline ; the caudal bordered with black Length six inches.

Cape York, (Castelnau).

361. *CARANX ARMATUS*, Cuv. and Val.

Gunth. Cat. Fishes II., p. 453.

D. 7-8. 1/20-21. A. 2. 1/16-17. L. lat. 20.

Bands of villiform teeth in the jaws, teeth on the vomer, palatines and tongue. The first ray of the dorsal and anal fins, and in males generally some of the middle ones, exceedingly elongate and filiform. Height of body half the length. Snout obtuse, equal to the diameter of the eye; lower jaw longest; the maxillary reaches beyond the vertical from the anterior margin of the orbit. Breast naked; lateral line moderately bent, becoming straight below the posterior half of the soft dorsal, the plates little developed. Opercular spot brown, the body banded in young specimens; the first ray of the dorsal and anal fins generally black, ventrals blackish.

Cape York (Chevert Exp.)

362. *CARANX RADIATUS*, *n. sp.*

D. 6. 1/23. A. 2. 1/19.

Small teeth in the jaws and on the vomer and palate. An outer series of rather larger teeth in the jaws; body compressed, the height about one-third of the length; snout more than the diameter of the eye; the maxillary reaching to the vertical from near the middle of the eye. Scales small, adherent, covering the whole body; lateral line much curved on the first third, the straight portion commencing below the commencement of the second dorsal, strongly keeled and occupying forty-one scales. All the rays of the dorsal and anal fins prolonged into filaments, with a very large skinny sheath for their reception; tail small, spreading, and deeply forked; pectorals extending to about the tenth plate of the straight portion of the lateral line. Colour, (spirit specimen) brownish-silvery.

Rockingham Bay (Ramsay's Coll.)

363. *CARANX CILIARIS*, Bl.

Gunth. Cat. Fishes II., p. 454.—Jour. Mus. Godeff. Heft. V., t. 89.

D. 6. 1/19. A. 2. 1/10. L. lat. 15.

Teeth in villiform bands in the jaws, teeth on the vomer, palatines and tongue; height of body once and a-half in the total length, the length of head three times and a-half; the first dorsal fin short and rudimentary, the anterior rays of the second dorsal and anal exceedingly elongate and filiform; lower jaw longer than upper; the maxillary extends beyond the vertical from the anterior margin of the eye. The width of the opercle is half its height; the lateral line is bent anteriorly, and becomes straight below the middle of the soft dorsal, the plates very little developed. Opercular spot and membrane between the first five dorsal rays black. Body with six subvertical blackish bands, disappearing with age.

Port Jackson. North Coast.

364, *CARANX GALLUS*, L.

Gunth., Cat. Fishes II., p. 455.

Gallichthys major, Cuv. & Val., Hist. Poiss. IX., p. 168, pl. 254.

B. 6. D. - 1/19. A. - 1/16. L. lat. 8. Vert. 10/14.

Spines of dorsal and anal entirely absent; the ventrals and the anterior rays of the soft dorsal and anal fins very elongate, filiform. Teeth as in *C. ciliaris*. Height of body about twice in the total length; the height of the præorbital much more than the diameter of the eye. The origin of the soft dorsal is the highest point of the back, from which the profile descends rapidly and is convex on the nape of the neck. Lower jaw prominent; lateral line strongly curved anteriorly, becoming straight below the middle of the dorsal, the plates very little developed. Scales none. Uniform silvery, immature specimens with vertical bands.

Endeavour River (Macl. Mus.)

Genus *SERIOLA*, Cuv.

Characters the same as *Caranx*, but with the body less compressed and the lateral line not armed.

Nearly all temperate and tropical seas.

365. *SERIOLA LALANDII*, Cuv. & Val.

Gunth. Cat. Fishes II., p. 463.

"*King Fish*" of Port Jackson.

D. 7. $1/32-34$. A. 2. $1/20-21$.

Scales very small; height of body about four times and a-half in the total length, head about the same; snout elongate, twice the diameter of the eye in length. Abdomen broad, not compressed; ventral fins moderate, their length twice and a-half in the distance between their base and that of the anal fin; the maxillary reaches somewhat beyond the vertical from the anterior margin of the eye. Coloration uniform.

Port Jackson. East Coast.

366. *SERIOLA NIGROFASCIATA*, Rüpp.

Gunth. Cat. Fishes II., p. 465.

B. 7. D. 5-6 $1/31-33$. A. - $1/15-17$. Cæc. pylor. 7.

Scales exceedingly small, rudimentary. The height of the body is three times and two-thirds in the total length, the length of the head four times; snout obtuse, equal in length to, or rather shorter than, the diameter of the eye. Abdomen broad, not compressed; the ventral fins nearly as long as the head; the maxillary reaches to the vertical from the centre of the eye. Back crossed by six broad brown bands; the ventrals and top of the dorsal and anal fins black.

Port Jackson (Castelnau.)

367. *SERIOLA GIGAS*, Gunth.

Gunth. Cat. Fishes II., p. 446.

D. 8. 1/24. A. 2. 1/16.

Scales small; height of body four times and four-fifths in the total length, and equal to the length of the head; the snout is of moderate extent, twice the diameter of the eye and subconical. The maxillary reaches to the vertical from the anterior margin of the orbit; the ventrals are longer than the pectoral fins, but do not reach the vent. The teeth form broad villiform bands; the band on the vomer is elongate and quadrangular, that on the palatines broad and elliptical. The soft dorsal and anal fins are elevated anteriorly, their height being more than half that of the body. Coloration uniform, the sides sometimes dotted with brown.

Houtman's Abrolhos, West Australia.

368. *SERIOLA GRANDIS*, Casteln.

Proc. Zool. Soc., Victoria, Vol. I., p. 115.

" *Yellow Tail* " of the Melbourne Fishermen.

D. 6. 1/35. A. - 1/20.

Of long oval form, height of body four times in the total length, the length of the head about four times and one-third; and the orbit seven times and one-third in the length of the head. Eye oval and oblique; lateral line wavy and marked on about 143 scales, the transverse line contains nearly 200; a keel on the posterior part of the lateral line near the tail. Scales on the posterior parts of the body larger; dorsal spines very low; second dorsal and anal fins have their anterior rays much longer than the others, giving a falciform appearance. Coloration dark blue above, silvery grey below; a yellow longitudinal band on each side; fins yellowish-grey; caudal yellow, darker in the centre; pectorals black with yellow edge; mouth flesh colour; eye yellow.

Melbourne; Port Jackson (Castelnau).

369. *SERIOLA HIPPOS*, Gunth.

Ann. and Mag. Nat. Hist. 1876, 4th series, Vol. XVII., p. 392.

"*Samson Fish*" of Sydney Fishermen.

D. 7/25. A. 2/17.

Scales minute, height of body twice and one-third in the length (without caudal), the length of the head thrice and one-third; snout short and high; upper profile of the head parabolic, (resembling *Caranx hippos*). Jaws equal, the maxillary extends to below the middle of the eye; its extremity dilated, as broad as the præorbital. Eye far below the upper profile of the head; angle of præoperculum rounded; the fifth dorsal spine longest, as long as the eye; anterior rays of soft dorsal and anal fins somewhat higher than the others. Caudal deeply forked; pectorals broad, short, shorter than the ventrals. Silvery, back greenish. The upper half of the body with five rather broad black cross bands; one in front, one below the spinous dorsal, and three below the soft dorsal; (these become indistinct in old specimens); a similar but less distinct band above the eye; spinous dorsal and ventral fins black.

Port Jackson.

Genus *NEPTOMENUS*, Gunth.

Body oblong, compressed, covered with cycloid scales of moderate size; the cleft of the mouth of moderate width; snout obtusely conical. Præopercular margin obtusely crenulated. The first dorsal fin continuous with seven feeble spines, the second and anal more developed, with a scaly sheath at the base; finlets none; anal spines indistinct. Pectoral fins much longer than the ventrals. A series of minute teeth in the jaws; palate toothless. Six branchiostegals.

New Zealand and Australian Seas.

370. NEPTOMENUS BRAMA, Gunth.

Gunth. Cat. Fishes II., p. 390.

D. 7. $1/27$. A. $2/21$. L. lat. 88. L. transv. $16/25$.

Height of body three times and a-half in the total length; length of head four and a-half in the same; snout obtusely conical, equal in length to the diameter of the eye; the maxillary feeble, extending to the vertical from the anterior margin of the eye; posterior edge of præoperculum emarginate, the angle rounded. Dorsal spines feeble, anal indistinct, soft dorsal and anal fins rather low, with a scaly sheath at the base; pectorals elongate and pointed, ventrals rather short, attached to the belly by a membrane; caudal deeply forked. Colour greenish-silvery, with narrow shining longitudinal streaks along the series of scales.

Tasmania.

371. NEPTOMENUS DOBULA, Gunth.

Gunth., Proc. Zool. Soc., Lond., 1869, p. 429.

D. 7. $1/40$, A. 2. $1/23$. Vert. 24.

The length of the head is three times and a-half in the total length, (without caudal fin), the height of the body four times and one-third. Scales small and deciduous. Pectoral fin not quite so long as the head.

Tasmania.

372. NEPTOMENUS TRAVALE, Casteln.

Proc. Zool. Soc., Victoria, Vol. I., p. 119.

D. 6. $2/30$. A. 2. $2/21$. L. lat. 93.

Height twice and two-thirds in the total length; head four times. Snout short; eye large; lower jaw longer than upper, upper part of head naked; cheeks and operculum scaly; præoperculum emarginate behind and very finely denticulated and rayed. Scales small and deciduous; tail forked. General colour

bluish-grey, lighter on the belly, a broad purplish spot on the back behind the head; sides sometimes covered with minute dark dots.

Melbourne. Port Jackson? (Macl. Mus.)

Genus CHORINEMUS, Cuv. & Val.

Body compressed, oblong; cleft of mouth moderate or wide, dermal productions small, lanceolate, hidden in the skin. Two dorsal fins, the first formed by free spines in small number; the posterior rays of the second dorsal and of the anal, detached or semi-detached, penicillated. Two anal spines separated from the soft portion. Small teeth in the jaws, and on the vomer and palatines. Branchiostegals seven or eight. Pseudobranchiæ. Air-bladder bifurcate posteriorly; pyloric appendages in great number.

In most tropical seas.

373. CHORINEMUS LYSAN, Forsk.

Gunth. Cat. Fishes, II., p. 471.

Chorinemus Forsteri, Richards, Ann. and Mag. Nat. Hist, 1843, XI., p. 24.

B. 8. D. 7. 1/19. A. 2. 1/18. Vert. 10/16.

Height of body four times in the total length, the length of the head five and a-half times. The maxillary is very slightly widened and rounded posteriorly and reaches far beyond the vertical from the posterior margin of the eye; the length of the intermaxillary is more than half that of the head; the snout is obtuse, and about equal in length to the diameter of the eye. A series of six or eight large, round, brown spots above the lateral line.

Cape York. Torres Straits. (Chevert Exp.)

374. CHORINEMUS TOLOO, Cuv. & Val.

Gunth. Cat. Fishes II., p. 473.

D. 7. 1/19. A. 2. 1/18.

The height of the body is four times and the length of the head five times and a-half in the total length. The maxillary does not reach to the vertical from the posterior margin of the eye. The snout is obtuse and about as long as the diameter of the eye. A series of more or less distinct greyish spots along the side of the body; the top of the dorsal and anal fins and the lobes of the caudal blackish.

Cape York (Chevert Exp.) South Australia (Castelnau).

Genus TEMNODON, Cuv. & Val.

Body oblong, compressed, covered with cycloid scales of moderate size; cleft of mouth rather wide. Jaws with a series of strong teeth; teeth on the vomer and palatine bones. Præoperculum with some slight denticulations; the first dorsal fin with eight feeble spines, continuous; the second and anal more developed, covered with scales and without finlets. Branchiostegals seven; air-bladder simple; pyloric appendages in great number.

Nearly all temperate and tropical seas.

375. TEMNODON SALTATOR, Bl.

Gunth., Cat. Fishes II., p. 479.

"*Tailor*" of Sydney; "*Skip Jack*" of Melbourne.

D. 8. 1/24-26. A. 1-2. 1/26-28. L. lat. 90-100. L. transv. 8/19.
Vert. 12/14.

The maxillary reaches to or nearly to, the vertical from the posterior margin of the eye. Præoperculum with a notch above the angle and slight denticulations along the lower limb. Dorsal spines very feeble. Coloration uniform.

Port Jackson. All Australian Coasts.

Genus TRACHYNOTUS, Cuv. & Val.

Body compressed, more or less elevated, covered with very small scales; cleft of mouth small, muzzle swollen above, obtuse. Opercles entire. Two dorsal fins, the first composed of free spines in small number, with an anterior horizontal one; two anal spines separated from the soft portion. No finlets. Small teeth in the jaws and on the vomer and palatines, disappearing with age. Seven branchiostegals, no pseudobranchiæ. Pyloric appendages in considerable or moderate number.

Nearly all temperate and tropical seas.

376. TRACHYNOTUS OVATUS, L.

Gunth., Cat. Fishes II., p. 481. Many synonyms.

D. 6. 1/18-21. A. 2. 1/16-19.

Height of body from two to two and one-third times in the total length, length of head five and a-quarter, and lobe of caudal fin four times. Anterior rays of dorsal and anal fins more or less produced. Coloration uniform, dorsal, anal, and caudal lobes black.

Port Jackson. All Australian Coasts.

377. TRACHYNOTUS BAILLONII, Cuv. & Val.

Gunth., Cat. Fishes II., p. 484.

D. 6. 1/22. A. 2. 1/22.

The height of the body is three times and two-thirds in the total length, the length of the head five times, and a lobe of the tail three and a-third times. The anterior rays of the dorsal reach beyond the middle of the fin, those of the anal, beyond the end of the fin. A series of three or five black dots along the lateral line, which is nearly straight. Dorsal, caudal, and anal lobes black.

Port Jackson. Torres Straits (Chevert Exp.)

Genus PSETTUS, Cuv. & Val.

Body much compressed and elevated, snout rather short. One dorsal fin entirely covered with scales, with seven or eight spines; anal with three; ventrals rudimentary. Teeth villiform, none on the palate. Scales small. Six branchiostegals; air-bladder forked behind, pyloric appendages in increased number.

Indian and Polynesian Seas.

378. PSETTUS ARGENTEUS, L.

Richards, Voy. Erebus and Terror, p. 57, pl. 35.—Gunth., Cat. Fishes II., p. 487.

D. 8/29. A. 3/29. L. lat. 75. Vert. 9/14.

The height of the body is once and a-half in its length (without fins); the diameter of the eye is nearly one-third of the length of the head. Silvery; a blackish ocular band, indistinct in mature specimens.

Port Jackson. All Australian Coasts.

Genus PLATAX, Cuv. & Val.

Body much compressed and elevated; snout very short. One dorsal fin, with the spinous portion nearly entirely hidden and generally formed of five spines; anal with three; ventrals well developed with one spine and five rays. Teeth setiform, with an external series of rather larger ones, notched at the top; no teeth on the palate. Scales moderate or small. Six branchiostegals; air-bladder simple.

Indian and Australian Seas.

379. PLATAX VESPERTILIO, Bl.

Gunth., Cat. Fishes II., p. 489.—Bleek., Atl. Ichth. Chætod., pl. 18, fig. 2-3, and pl. 17, fig. 1.

D. 5/35-37. A. 3/26-28. L. lat. 64.

The height of the body is greater than the length (caudal fin excluded); snout entirely obtuse, not prominent; dorsal and anal fins elevated; the ventrals extending nearly to the middle of the anal fin. Ventrals black; a brown ocular band reticulated with black.

Cardwell, Queensland (Castelnau).

380. *PLATAX ORBICULARIS*, Forsk.

Gunth. Cat. Fishes II., p. 490.—Macl. Proc. Linn. Soc. N.S.W., II., p. 353.

D. 3-5/36-37. A. 3/26-27. L. lat. 55-60.

Height of body less than its length, (without caudal); snout prominent; præorbital a little narrower than the orbit; dorsal and anal fins moderately elevated, rounded; ventrals not reaching the anal fin, black at the base and the extremity. A more or less distinct ocular band.

Port Darwin (Macl. Mus.)

381. *PLATAX TEIRA*, Forsk.

Gunth. Cat. Fishes II., p. 492.—Bleek., Atl. Ichth. Chætod., pl. 17, fig. 2.

D. 5/31-33. A. 3/24-27.

Scales very small; height of body more than its length (without fins); snout entirely obtuse, not prominent. Dorsal and anal fins exceedingly elevated in immature specimens, obtuse in adult ones; the ventral fins reach beyond the caudal, in adult specimens scarcely to the anal. Ventrals black; three blackish vertical bands; one through the eye, one over the shoulder to the belly, and one from the dorsal to the anal; these bands disappear with age.

Hall Sound, South Coast of New Guinea (Chevert Exp.)

Genus *ZANCLUS*, Cuv. & Val.

Body much compressed and elevated; one dorsal fin with seven spines, the third very elongate. No teeth on the palate; præ-operculum without spine. Scales minute, rough. Air-bladder present. Branchiostegals four. Pyloric appendages in increased number.

Indian and Polynesian Seas.

382. *ZANCLUS CORNUTUS*, L.

Gunth. Cat. Fishes II., p. 493.—Bleek., Atl. Ichth. Chætod., pl. 4, fig. 1-2.

B. 4. D. 7/41. A. 4/32. Cæc. pylor. 14. Vert. 9/13.

A pointed horn above each orbit in adult specimens; the third dorsal spine exceedingly elongate, filiform. Two broad black cross-bands from the dorsal fin to the belly; caudal fin black, with the posterior margin white, crescent shaped.

Australia? (old collection).

Genus *PSENES*, Cuv. & Val.

Body compressed, elevated, covered with rather small cycloid scales; cleft of the mouth narrow, with the muzzle above swollen, truncated and short. Two dorsal fins, the first continuous, the second and anal more developed; anal spines joined to the soft portion. A series of small teeth in the jaws, none on the palate. Six or seven branchiostegals; air bladder bifurcate posteriorly.

Indian and Australian Seas.

383. *PSENES LEUCURUS*, Jenyns.

Zool. Beagle, Fishes p. 73.—Gunth., Cat. Fishes II., p. 495.

D. 10. 1/27. A. 3/27.

The height of the body is two and a-half times in the total length. Fins black or dusky; caudal whitish. From one to two inches in length.

Port Jackson (Gunther).

Genus EQUULA, Cuv. & Val.

Body more or less compressed, elevated or oblong, covered with small deciduous cycloid scales. Mouth very protractile. Minute teeth in the jaws, none on the palate. One dorsal fin. Five branchiostegals; pseudobranchiæ; air-bladder large, terminating in two short horns.

Indian and Australian Seas.

384. EQUULA EDENTULA, Bl.

Gunth. Cat. Fishes II., p. 498.

Equula serrulifera, Richards, Voy. Erebus and Terror, Ichth., p. 137, pl. 59, fig. 12-14.

B. 5. D. 8/15-16. A. 3/14. Cæc. pylor. 2.

Height of body twice or twice and a-quarter in the total length, the length of the head from four times to four and a-third; the upper profile is angular. A pair of small spines above the anterior margin of the orbit; the cavity on the head is quadrangular, much broader anteriorly than posteriorly, its width between the spines being once and two-thirds in its length. The lower præopercular margin is serrated, and its length is one and two-fifths that of the mandibula, which is very concave and ascends at an angle of about 45° . The second dorsal spine is three quarters the length of the head. Scales very small, but conspicuous. Spinous dorsal without black; base of the pectoral brownish.

Coasts of Australia (Richardson); Endeavour River (Macleay Museum).

385. *EQUULA INTERRUPTA*, Cuv. & Val.

Gunth., Cat. Fishes II., p. 504.

D. 8/16. A. 3/14.

The height of the body is one-half the total length, the length of the head is contained four times and two-thirds in the same. No spines above the orbit; the cavity on the head is triangular, and twice and a-half as long as broad. The lower præopercular margin is minutely serrated; the mandibula ascends in a vertical line. Scales rather small; the lateral line terminates below the origin of the soft dorsal. Back with somewhat irregular vertical blackish streaks, generally interrupted and forming spots.

Port Essington.

FAMILY XVIII., CYTTIDÆ.

Seombroid fishes with two distinct divisions of the dorsal fin, the spinous portion less developed than the soft. Body elevated, covered with very small or rudimentary scales or bony protuberances.

Genus *ZEUS*, Cuv.

Body much compressed and elevated; cleft of mouth wide. Scales exceedingly small or entirely absent. Two contiguous dorsal fins, the first with nine or ten spines; the anal with three or four spines; a series of bony plates along the base of the dorsal and anal fins; another series on the abdomen. Minute teeth in the jaws and on the vomer; none on the palatine bones. Seven branchiostegals. Air-bladder large; pyloric appendages in very great number.

Mediterranean, Atlantic and Pacific Oceans.

386. *ZEUS AUSTRALIS*, Richards.

Zool. Voy. Erebus and Terror, pp. 36 and 138, pl. 25, f. 1.—
Casteln., Proc. Zool. Soc., Victoria, Vol. I. p. 108.

“*John Dorey*.”

D. 10/23. A. 4/22. V. 1/6.

Height of body two and a-half times in the total length, head three times in the same; orbit five times in the length of the head. A short pointed backwards spine at the root of each dorsal spine. At the base of the soft dorsal and anal fins there are about seven bony plates armed with one or two spines on each; nine spinous plates between the ventrals and the anus. General colour dark green, with yellow tinges on the sides of the head and body. A larges round black blotch about the middle of the side.

Port Jackson. Port Phillip.

Dr. Gunther regards this species as identical with the John Dorey of Europe, *Zeus faber*.

Genus CYTTUS, Gunth.

Body compressed and elevated, covered with very small scales; mouth protractile. Two contiguous dorsal fins, the first with eight or nine spines, the anal with two. No bony plates along the base of the dorsal and anal fins. Ventrals with one spine and six or eight soft rays. Minute teeth in jaws and on vomer, none on the palatines. Eight branchiostegals.

Madeira and Australia.

357. CYTTUS AUSTRALIS, Richards.

Gunth., Cat. Fishes II., p. 396.

Capros australis, Richards, Voy. Erebus and Terror, Ichth., p. 137, pl. 59, f. 1-5.

B. 8. D. 9/28. A. 2/30. V. 1/6.

The upper and lower profiles of the snout are straight. Scales very small. The spines of the dorsal and ventral fins elongate and flexible, those of the anal short. The ventrals can be received in a sheath on the abdomen, and cover the vent. Silvery.

Tasmania, South Coasts of Australia.

FAMILY XIX. CORYPHÆNIDÆ.

Scombroïd fishes with one long dorsal fin, without distinct spinous division, and without teeth in the œsophagus.

Genus CORYPHÆNA, Cuv. & Val.

Body compressed, rather elongate; adults with an elevated crest on the skull; cleft of the mouth wide. A single dorsal fin, extending from the occiput nearly to the caudal fin, which is deeply forked; no distinct dorsal and anal spines; the ventral fins are well developed and can be received partly in a groove in the abdomen. Scales very small. Cardiform teeth in the jaws, on the vomer and the palatine bones; a patch of villiform teeth on the tongue. Branchiostegals seven; pseudobranchiæ and air-bladder absent. Pyloric appendages exceedingly numerous.

Pelagic Fishes.

388. CORYPHÆNA PUNCTULATA, Cuv. & Val.

Gunth., Cat. Fishes II., p. 408.

D. 51. A. 25.

The height of the body is nearly equal to the length of the head, and one-fourth of the length of the body without the caudal fin. The ten or twelve posterior rays of the dorsal and anal fins have their extremities dilated and projecting beyond the membrane, by which they are connected at the base. Silvery, darker on the back, with scattered black dots. (Cuv.)

Port Jackson.

One specimen in the Australian Museum, perhaps not *C. punctulata*, but seems to resemble that species most.

Genus BRAMA, Risso.

Body compressed and more or less elevated, covered with rather small scales; cleft of the mouth very oblique, with the lower jaw longest. Dorsal and anal fins elongate, the former with three or

four, the latter with two or three spines; caudal deeply forked; ventrals thoracic, with one spine and five rays. The jaws with an outer series of stronger teeth, the teeth of the palatine bones and of the vomer are easily lost. Opercles entire. Seven branchiostegals; air-bladder none. Pyloric appendages in small number.

Almost all seas.

389. BRAMA RAII, Bl.

Gunth., Cat. Fishes II., p. 408.—Cuv. & Val., pl. 190.

D. 3/30-33. A. 2/27. L. lat. 80-95. L. transv. 13/23. Cæc. pylor. 5. Vert. 16/26.

The greatest height of the body is below the origin of the dorsal fin, and is one-third of the total length; the eye is situated in the centre of the head; the pectoral fins reach to the middle of the anal fin. Coloration uniform.

Port Jackson (Castlenau.)

FAMILY XX. NOMEIDÆ.

Scombroid fishes with two dorsal fins, sometimes finlets; caudal fin forked. Scales cycloid, of moderate size; body oblong.

Genus NOMEUS, Cuv. & Val.

Body oblong, rather compressed, covered with cycloid scales of very small size; cleft of mouth narrow. Lateral line without armature. First dorsal fin with ten or eleven spines, the second and anal more developed; no detached finlets; no separate anal spines. Ventral fins long and broad, attached to the belly by a membrane and can be received in a fissure of the abdomen. Teeth small, forming single series in the jaws; teeth on the vomer and palatines. Pyloric appendages very numerous. Air-bladder present; branchiostegals six.

Tropical Atlantic, Indian and Polynesian Seas.

390. *NOMEUS GRONOVII*, Gm.

Gunth., Cat. Fishes II., p. 387.

B. 6. D. 10. 1/26-27. A. 1/26-27. V. 1/5. Vert. 16/25.

The maxillary reaches to below the anterior margin of the eye. The ventrals extend to, and the pectorals beyond, the anal fin. The upper parts brown, the brown colour forming several band-like spots on the sides; anal with three brown spots; ventrals black.

Australia (Gunther), probably Western Australia.

Genus *PLATYSTETHUS*, Gunth.

Body oblong, compressed, scales moderate, smooth and minutely serrated on the edge; cleft of mouth narrow, oblique; snout obtuse, of moderate extent. Præopercular margin entire. The first dorsal fin continuous, with eight stout spines, the second and anal much more developed and can be received in a scaly sheath; finlets none; anal spines three; pectorals and ventrals rather short; minute teeth in the jaws; palate smooth. Branchiostegals five or six.

Norfolk Island and New Zealand.

391. *PLATYSTETHUS CULTRATUM*, Forst.

Gunth., Cat. Fishes II., p. 391.

Seriola cultrata, Richards, Ann. and Mag. Nat. Hist. 1843, XI., p. 169.

B. 5-6. D. 8. 1/24. A. 3/30. L. lat. 60. L. tr. 5/14. Vert. 25.

Uniform silvery, the edge of the abdomen rather sharp.

Norfolk Island.

FAMILY XXI. *SCOMBRIDÆ*.

Two dorsal fins; either finlets, or the spinous dorsal composed of free spines, or modified into a suctorial disk, or the ventrals jugular and composed of four rays. Scales none or very small.

Genus SCOMBER, Artedi.

Body elongate, cleft of mouth wide ; scales very small, equally covering the body. Teeth small. Five or six finlets behind the dorsal and anal fins. Two slight ridges on each side of the tail. Seven branchiostegals ; air-bladder simple, sometimes absent ; pyloric appendages in exceeding great number.

Almost all temperate and tropical seas.

392. SCOMBER AUSTRALASICUS, Cuv. & Val.

Gunth. Cat. Fishes II., p. 359.

D. 10. 1/11 v. A. 1. 1/11 v. L. lat. about 160.

The height of the body is five times and a-half in the total length, the length of the head four and a-quarter. Teeth very distinct. Back greyish-green ; sides and belly silvery. An air-bladder.

King George's Sound (Cuv. & Val.)

393. SCOMBER ANTARCTICUS, Casteln.

Proc. Zool. Soc., Victoria, Vol. I., p. 106.

"*The Mackerel*" of the South-east Coast of Australia.

D. 11. 1/11 v. A. 1/11 v. P. 20.

Height of body five times and a-quarter in the total length, head four and a-quarter ; orbit five and a-half times in the length of the head. The second dorsal spine the largest, the eleventh very small ; the upper part of the præoperculum is covered with scales, some beneath the eye of a very elongate form. Teeth small, hooked, and disposed in a line, on the palatine bones a line of numerous teeth rather longer than those in the jaws. No air-bladder. Colour dark greenish-blue above, silvery white below ; back marked with blackish waving lines ; sides with a longitudinal series of large roundish spots, beneath them numerous black dots.

Port Jackson, Victoria, and Queensland.

Genus THYNNUS, Cuv. & Val.

Body oblong; cleft of the mouth wide. The first dorsal continuous with the spines rather feeble; six to nine spurious fins behind the dorsal and anal. Scales of the pectoral region forming a corslet. Teeth rather small in the jaws and on the vomer and palatines. A longitudinal keel on each side of the tail. Seven branchiostegals. Air-bladder simple, sometimes absent. Pyloric appendages in exceedingly great number.

All Oceans.

394. THYNNUS AFFINIS, Cantor.

Gunth. Cat. Fishes II., p. 363.

D. 15. 3/10 VIII. A. 3/11 VII.

The height of the body is four times and a-half in the total length, the length of the head three and three-quarters; the length of the pectoral fin is six times and a-half in the total. Above blue, with oblique undulating blackish bands, directed backward and upwards; sides and belly silvery; the first dorsal fin with a brownish spot.

Port Jackson (Macl. Mus.)

395. THYNNUS PALAMYS, L.

Gunth. Cat. Fishes II., p. 364.

"*The Bonita*."

D. 15. 1/12 VIII. A. 2/12 VII.

The height of the body is four times in the length to the middle of the fork of the tail; the length of the head three and a-half in the same. The pectoral fin reaches to the vertical from the tenth dorsal spine; the length of the posterior margin of the præoperculum is once and two-thirds in that of the inferior. Back bluish, on each side of the belly four brownish longitudinal bands.

Port Jackson (Castelnau), East Coast.

396. THYNNUS MACCOYI, Casteln.

Proc. Zool. Soc., Victoria, Vol. I., p. 104.

D. 13-14. 1/13 IX. A. 1/13 IX.

Height of body one-fourth of the length; body short and thick; lower jaw rather longer than the upper; diameter of the eye one-fifth of the length of the head. Scales very small, those of the lateral line about 180 in number, being a little larger and keeled. Colour bluish-black, with brown tinges on the sides of the head. Length 23 inches.

Melbourne.

Genus PELAMYS, Cuv. & Val.

Body oblong or slightly elongate; cleft of mouth wide. Dorsal spines feeble: seven to nine dorsal finlets, six or more anal. Scales of pectoral region forming a corslet. Teeth of moderate strength, teeth on the palatines, none on the vomer. A keel on each side of the tail. Seven branchiostegals; air-bladder none; pyloric appendages dendritical.

Ocean Fishes.

397. PELAMYS AUSTRALIS, *n. sp.*

D. 19. 3/12 VII. A. 3/12 VI.

Height of body about one-fourth of total length, snout pointed, about three times the diameter of the eye in length; the maxillary extends beyond the vertical from the posterior margin of the orbit; teeth in the jaws rather strong and far apart; præoperculum strongly striolated; lateral line wavy and nearly straight. Body naked, caudal keels very strong. Bluish on the back, silvery on the sides and belly, with seven or eight longitudinal brown bands on the back and sides.

Port Jackson (Macleay Mus.)

Genus *AUXIS*, Cuv. & Val.

Body oblong; cleft of mouth wide; the first dorsal fin continuous, separated from the second, with the spines of moderate strength. Seven to nine dorsal and anal finlets. Scales of the pectoral region forming a corslet; teeth very small, none on the palate; a keel on each side of the tail; seven branchiostegals; no air-bladder; pyloric appendages dendritical.

All Seas.

398. *AUXIS ROCHEI*, Risso.

Gunth., Cat. Fishes II., p. 369.

Auxis vulgaris, Cuv. & Val., Poiss., Vol. VIII., p. 139, pl. 216.

D. 10-11/12 VIII. A. 12-14 VII. Vert. 39.

The height of the body is four times and a-half (in young individuals six times) in the total length, and equals the length of the head; the pectoral fin reaches to the end of the first dorsal. Back blue, variegated with darker—uniform in old age; belly silvery.

West Australia (Castelnau).

399. *AUXIS RAMSAYI*, Casteln.

Proc. Linn. Soc. N. S. Wales, Vol. III., p. 382.

“*Horse Mackerel*” of the Sydney Fisherman.

Port Jackson.

Genus *CYBIUM*, Cuv.

Like the last genus, but with the teeth stronger and on the palate, and no corslet on the pectoral region.

All Seas.

400. *CYBIUM COMMERSOII*, Lacep.

Gunth., Cat. Fishes II., p. 370.

D. 16. 2/15 IX-X. A. 2/15 IX-X.

Teeth triangular, strongly compressed, close together. The height of the body is five and a-half times to seven in the total length, the length of the head four to five times. Lateral line curved under the first finlet. Above bluish, beneath silvery; back and sides with numerous oblong, vertical, brownish spots.

Port Jackson (Macl. Mus.)

401. CYBIUM GUTTATUM, Cuv. & Val.

Cantor, Cat. p. 111.—Gunth., Cat. Fishes II., p. 371.

D. 16/19-20 VIII-X. A. 21-22 VII-VIII.

Teeth triangular and compressed. Height of body five times in the total length, and about equal to the head. Above blue, beneath silvery, back and sides with numerous brown spots and longitudinal bands; the greater part of the first dorsal fin black, the remainder white.

Port Jackson (Macl. Mus.)

Genus NAUCRATES, Cuv.

Body oblong, subcylindrical, covered with small scales; cleft of mouth moderate; a keel on each side of the tail; spinous dorsal reduced to a few free spines; finlets none; ventrals thoracic. Villiform teeth in the jaws, on the vomer and palatines. Seven branchiostegals; air-bladder small; pyloric appendages in moderate number.

All Seas.

402. NAUCRATES DUCTOR, L.

Gunth., Cat. Fishes II., p. 374.

Naucrates Indicus, Less., Voy. Coq., Poiss., p. 157, pl. 14.

"*The Pilot Fish*."

D. 3-6. 1/26-28. A. 2/16-17. Cæc. pylor. 12-15. Vert. 10/16.

Bluish, with five to seven dark vertical bars.

Port Jackson.

Genus ELACATE, Cuv.

Body fusiform, covered with very small scales; head depressed; cleft of mouth moderate; no keel on the side of the tail; the spinous dorsal formed of free and small spines; no finlets; ventrals thoracic. Villiform teeth in the jaws and on the vomer and palatines. Seven branchiostegals; no air-bladder; pyloric appendages dendritical.

West Indies. Indian and Australian Seas.

403. ELACATE NIGRA, Bl.

Gunth. Cat. Fishes II., p. 375.

The "*King Fish*" of the West Indies.

D. 8/28-35. A. 25-27. Vert. 12/13.

The height of the body is one-eighth of the total length; caudal fin obliquely truncated, with the upper lobe longest. Back and the upper half of the sides brownish or bluish-black, with a light longitudinal band from above the orbit to the root of the caudal fin.

Port Jackson (Macl. Mus.)

Genus ECHENEIS, Artedi.

Body fusiform, with very small scales; head depressed; the spinous dorsal modified into an adhesive disk; no keel on the side of the tail; finlets none; ventrals thoracic. Villiform teeth on the jaws, vomer, and palatines, and generally on the tongue. Seven branchiostegals; no air-bladder; pyloric appendages in moderate number.

All Seas.

404. ECHENEIS REMORA, L.

Gunth. Cat. Fishes II., p. 378.

“*Sucking Fish*” of the English.

D. 16-18/22-24. A. 25. Cæc. pylor. 6. Vert. 12/15.

The length of the disk is three times and one-sixth in the total; the width of the body between the pectorals five and a-half. Caudal fin subcrenate; dorsal and anal not continued to the caudal. Mouth rounded. Colour brown.

Port Essington. Bass’ Straits.

405. ECHENEIS NAUCRATES, L.

Gunth., Cat. Fishes II., p. 384.—All. & MacL., Proc. Linn. Soc. N.S. Wales, Vol. I., p. 321.

D. 22-25/33-41. A. 32-38. Vert. 14/16.

The length of the disk is four times and a-half to four and three-fifths in the total, or twice the width of the body between the pectoral fins; caudal fin subcrenate in mature, more or less convex in immature, and very much produced in the middle in young specimens. Mouth rounded with the lower jaw pointed. Brown, generally a blackish band, edged with whitish, from the snout, through the eye, along the side of the body and the tail, sometimes uniform, sometimes irregular blotches instead of the band.

Darnley Island (Chevert Exp.) North Coast.

FAMILY XXII. TRACHINIDÆ.

Body elongate, low, naked or covered with scales. Teeth in villiform bands, with pointed and conical canines in some of the genera; no molars or trenchant teeth. The infraorbital ring does not articulate with the præoperculum. One or two dorsal fins, the spinous portion always much less developed, and shorter than the soft; the anal similarly developed to the soft dorsal; ventrals with a spine and five or six rays. Gill opening more or

less wide ; five, six, or seven branchiostegals ; pseudobranchiæ ; no prominent anal papilla.

Group A. *Uranoscopina*.

Eyes on the upper surface of the head ; lateral line continuous.

Genus KATHETOSTOMA, Gunth.

Head large, broad, and partly covered with bony plates ; body somewhat cylindrical, cleft of mouth vertical. Scales none. One continuous dorsal fin ; ventrals jugular ; pectoral rays branched ; some bones of the head armed. Six branchiostegals ; air-bladder none.

Australian Seas.

406. KATHETOSTOMA LÆVE, Bl.

Gunth., Cat. Fishes II., p. 231.

“ *Stone Lifter* ” of Melbourne.

D. 17. A. 17. V. 1/5.

The length of the head is three times and two-thirds in the total. Three spines on the inferior margin of the præoperculum, two below the mandibula, two on the throat. Colour in spirits brownish above, yellowish below.

Tasmania. Melbourne.

Genus LEPTOSCOPIUS, Gill.

Head as in *Kathetostoma*, but entirely covered with soft skin, body elongate, mouth nearly vertical ; scales small, cycloid. One continuous dorsal fin ; ventrals jugular ; teeth villiform ; no canines. Opercles without external spines ; cavity of gills very wide, partially opened above. Six branchiostegals ; pseudobranchiæ ; no air-bladder.

Australian Seas.

407. *LEPTOSCUS MACROPYGUS*, Richards.

Voy. Erebus and Terror, Ichth., p. 55, pl. 33, f. 4-6.—Gunth.,
Cat. Fishes II., p. 232.

D. 31. A. 36. L. lat. 86 (43).

The scales of the lateral line twice as large as those of the adjoining series, each corresponding to two transverse series. The upper half of the head and body olive, mottled with brown; lateral line brown.

Port Jackson.

Group B. *Trachinina*.

Eye more or less lateral. Head not cuirassed. Lateral line continuous. Intermaxillary without larger tooth on its posterior portion.

Genus *PERCIS*, Bl.

Body cylindrical, elongate; cleft of mouth slightly oblique; eye lateral, directed upwards. Scales small, ctenoid. Dorsal fins more or less contiguous, ventrals a little before the pectorals, the lower rays branched. Villiform teeth and canines in the jaws, teeth on the vomer, none on the palatines. Operculum with two small spines, præoperculum entire or slightly denticulated. Six branchiostegals; pseudobranchiæ. No air-bladder; pyloric appendages in small number.

Indian and Polynesian Seas.

408. *PERCIS NEBULOSA*, Quoy. & Gaim.

Gunth., Cat. Fishes II., p. 237.

D. 5/21-22. A. 19-20. L. lat. 85. Cæc. pylor. 4. Vert. 10/20.

The height of the body is five times and a-half in the total length, the length of the head about four times; the space between the eyes is greater than their diameter. On each side two rows of brown clouded spots, those above the lateral line being the

larger; the spinous dorsal fin is deep black, with a vertical white streak before the third spine and a small white spot posteriorly, the second dorsal either white with four series of brown spots, or brown with four series of white spots; caudal with indistinct whitish transverse lines.

Sharks' Bay (H.M.S. Herald). Depuch Island (Richards.).

A species not uncommon in Port Jackson is generally believed to be identical with this one. I think otherwise, but for the present I defer the description of it as a distinct species.

409. PERCIS ALLPORTI, Gunth.

Ann. and Mag. Nat. Hist., 1876, 4th ser., Vol. XVII., p. 394.

D. 5/21. A. 16. L. lat. 62. L. transv. $3\frac{1}{2}/15$.

The height of the body is one-fifth, and the length of the head one-fourth of the length (without caudal). Snout longer than the eye, which is one-fourth of the length of the head. Spinous dorsal fin continuous with the soft, the spines subequal in length; sometimes, probably in the male, the first spine is longest. Caudal fin subtruncated. Greenish or yellowish-olive (in spirits), with seven black cross-bars on the back; an indistinct blackish blotch on the root of the upper caudal rays. Upper half of the caudal variegated with yellow and brown in the female; in the male the whole is uniform black.

Tasmania.

Genus APHRITIS, Cuv. & Val.

Cylindrical, elongate; cleft of mouth rather oblique; eye lateral. Scales rather small, minutely ciliated. Two separate dorsal fins, the first with six spines, ventrals jugular. Villiform teeth in the jaws, on the vomer and palatines; no canines; six branchiostegals; air-bladder none; pyloric appendages in small number.

South Pacific.

410. *APHRITIS URVILLII*, Cuv. & Val.

Gunth., Cat. Fishes II., p. 242.

D. 6/19. A. 25. L. lat. 65. Cæc. pylor. 4.

Palatine teeth. Caudal fin truncated. Reddish, marbled with brownish; dorsal and caudal fins with series of red dots.

Fresh-waters of Tasmania.

Genus *PSEUDAPHRITIS*, Casteln.

Characters of *Aphritis*, but the scales rather large; the first dorsal fin with seven spines and a short fin of two spines in front of the anal fin.

Australia.

411. *PSEUDAPHRITIS BASSII*, Casteln.

Proc. Zool. Soc., Victoria, Vol. I., p. 92.

D. 8/20. A. 2/22. V. 1/5.

Body elongate and subcylindrical; height seven and one-third times in the total length. Head conical, four times in the same; eye six times and three-quarters in the length of the head. The lateral line is straight; a groove extends along the summit of the back, from the head to the dorsal fin; the head is entirely covered with scales; the teeth are numerous, sharp and cardiform, and the first dorsal is composed of one spine and seven rays. Brown, with a very few faint transverse broad green bands on the back; side of head purple; red in front of the eyes; belly white, dorsal fins hyaline marbled with yellow and brown; caudal yellow with transverse crimson bands; anal pink; ventrals yellowish; pectorals yellow, with several narrow crimson lines of spots; eye yellow.

Bass's Straits (one specimen, Castelnau).

Genus *SILLAGO*, Cuv.

Body somewhat cylindrical, elongate; cleft of mouth small, the upper jaw longest; eye lateral, somewhat directed upwards.

Scales rather small, ctenoid. Two dorsal fins, the first with nine to twelve spines; ventrals thoracic. Villiform teeth in the jaws and on the vomer, none on the palatines. Operculum terminating in a point; præoperculum denticulated. The bones of the head with the muciferous system developed. Six branchiostegals; pseudobranchiæ; air-bladder simple; pyloric appendages in small number.

Indian and Australian Seas.

412. *SILLAGO MACULATA*, Quoy & Gaim.

Voy. Freyc. Zool., p. 261, pl. 53, fig. 2.—Gunth., Cat. Fishes II., p. 245.

The “*Whiting*” of the Sydney Fish Market.

D. 11. 1/20. A. 1/21. L. lat. 70. L. transv. 5-6/7.

The height of the body is five times and a-half in the total length, the space between the eyes is one-half the length of the snout; ventral spine feeble. On each side seven or eight blackish blotches and a yellow longitudinal band; the second dorsal fin dotted with blackish.

Port Jackson.

413. *SILLAGO PUNCTATA*, Cuv. & Val.

Quoy & Gaim., Voy. Astrol., p. 671, pl. 1, fig. 1.—Gunth., Cat. Fishes II., p. 245.

The “*Whiting*” of the Melbourne Market.

D. 12. 1/26. A. 1/22. L. lat. 170. L. transv. 35. Cæc. pylor. 4.

The height of the body is eight times in the total length, the length of the head four times and a-half. Body with numerous black spots above the lateral line; fins immaculate.

Hobson's Bay, Port Phillip. South Australia.

414. *SILLAGO BASSENSIS*, Cuv. & Val.

Sillago ciliata, Gunth. and Cuv. & Val., Cat. Fishes II., p. 245.

S. terræ-reginæ, Casteln., Proc. Linn. Soc. N.S. Wales, Vol. II., p. 232. *S. bassensis*, Casteln., Proc. Linn. Soc. N.S. Wales, Vol. III., p. 380.

“*Trumpeter Whiting*” of the Fishermen.

Port Jackson; Brisbane; Cape York.

415. *SILLAGO CILIATA*, Cuv. & Val., not of Gunth.

Casteln., Proc. Zool. Soc., Victoria, Vol. II., p. 113.

D. 11. 1/17. A. 2/16. L. lat. 63. L. transv. 16.

Height of body five times and two-thirds in the length to extremity of the middle of the tail; head three and a-half times in the same; eye five times in the head; the space between the eyes twice in the snout; the second dorsal fin covered with minute scales, also the caudal which is strongly emarginate. The colour is white and silvery, with the back darker, no longitudinal white or yellow streak on the sides: fins yellow edged with black, excepting the anal and ventrals which are bright yellow; the second dorsal with a few obscure streaks.

North Australia. Torres Straits. Cape York.

416. *SILLAGO GRACILIS*, All. & MacI.

Proc. Linn. Soc. N.S. Wales, Vol. I., p. 279, pl. 6, fig. 2.

Torres Straits.

Genus *ISOSILLAGO*, Macleay.

Proc. Linn. Soc. N. S. Wales, Vol. III., p. 34.

417. *ISOSILLAGO MACULATA*, Macleay.

Proc. Linn. Soc. N. S. Wales, Vol. III., p. 34, pl. 4, fig. 3.

King George's Sound.

Genus NEOSILLAGO, Casteln.

Cleft of mouth horizontal, with the lower jaw rather prominent. Two dorsal fins, the first with five spines; teeth on the palate, long canine teeth; præoperculum entire, pectoral fins formed of simple rays; body and snout elongate, scales rather small.

418. NEOSILLAGO MARMORATA, Casteln.

Researches on the Fishes of Australia, p. 16.

D. 5/21. A. 17. L. lat. 75.

Height of body six times in the length (without caudal) head a little over four times; eye oblong, three times and three-fourths in the length of the head, and once and a-quarter in the snout. Teeth numerous, with strong curved canines in front; spines of first dorsal fin strong but low, the second dorsal high; caudal bilobed. Head and anterior part of body red, posterior white; six large rounded obscure blotches on each side of the lateral line, the membranes of the first dorsal fin black, the other fins immaculate and white. Length 5 inches.

Port Walcott.

Genus BOVICHTHYS, Cuv. & Val.

Aspect cottoid, posterior portion of body compressed; cleft of mouth horizontal with the upper jaw rather longer; eye lateral, more or less directed upwards. Scales none. Two separate dorsal fins, the first with eight spines; ventrals jugular; the lower pectoral rays simple. Villiform teeth in jaws and on vomer and palatines, no canines. Operculum with a strong spine; præoperculum and præorbital not armed. Seven branchiostegals.

South Pacific.

419. BOVICHTHYS VARIEGATUS, Richards.

Voy, Erebus and Terror, p. 56, pl. 34, f. 1-4.—Gunth., Cat. Fishes II., p. 250.

D. 8/18. A. 13.

The soft dorsal fin is as high as the body beneath ; the length of the base of the spinous dorsal is equal to, or more than, one-half of that of the soft ; eyes slightly directed upwards ; the width of the interorbital space is half the length of the diameter of the eye. Back with five brown cross-bars.

Port Jackson.

Group C. *Pseudochromides*.

Eyes more or less lateral. Head not cuirassed. Lateral line interrupted or not continued to the caudal fin.

Genus OPISTHOGNATHUS, Cuv.

Body rather elongate, rounded anteriorly, slightly compressed posteriorly ; upper profile of snout parabolic ; cleft of mouth large ; the maxillary produced backwards ; eye lateral, large. Scales small ; lateral line not continued to the caudal. One dorsal fin with the rays flexible ; ventrals jugular ; lower pectoral rays branched. Cardiform teeth in the jaws, palate smooth. Opercles not armed. Six branchiostegals ; the gill membrane joined together inferiorly ; pseudobranchiæ, air-bladder small ; pyloric appendages none.

Red Sea, Indian and Australian Seas ; Coast of Brazil.

420. OPISTHOGNATHUS MACULATUS, All. & MacI.

Proc. Linn. Soc. N.S. Wales, Vol. I., p. 280, pl. 9, fig. 3.
Palm Islands.

421. OPISTHOGNATHUS DARWINIENSIS, Macleay.

Proc. Linn. Soc., N. S. Wales, Vol. II., p. 355, pl. 9, fig. 3.
Port Darwin.

422. *OPISTHOGNATHUS JACKSONIENSIS*, *n. sp.*

D. 26. A. 17. P. 15.

Head very round ; body tapering and very compressed towards the tail ; space between the eyes about one-third of their diameter ; maxillary broad and rounded behind, and reaching two-thirds of the distance between the eye and the angle of the præoperculum. The lateral line extends from the back of the head close beneath the dorsal fin till near its termination. Colour yellow, with blotches of brown on the body, and with the head densely spotted and reticulated with brown ; the lower margin of the maxillary and the membranes of the branchiostegals, black ; the dorsal and caudal fins spotted and variegated with brown, the anal black and the pectorals round, expanded, and of a bright yellow.

Port Jackson.

Genus *CICHLIPS*, Mull. & Trosch.

Head and body rather compressed, more or less elongate ; cleft of mouth oblique ; eye lateral. Scales of moderate size, ciliated ; lateral line interrupted. One dorsal fin with a few spines anteriorly ; ventrals inserted before or below the pectorals. Jaws with canine teeth, vomer toothed, none on the palatines. Præoperculum entire. Six branchiostegals ; pseudobranchiæ and air-bladder present ; pyloric appendages none.

East Indian Archipelago.

423. *CICHLIPS FILAMENTOSUS*, *n. sp.*

D. 2-3/23. A. 3/12. L. lat. 40.

The height of the body is one-fourth of the total length ; the snout is less than half the diameter of the eye in length ; a pair of very strong canine teeth in the lower jaw ; lateral line running near the dorsal fin to near the end, and then recommencing below it at about eight scales from the tail ; the rays of the dorsal, caudal, anal, and ventral fins all prolonged into filaments. Colour

in spirits uniform sooty brown, with numerous minute blue spots about the head.

Port Darwin.

424. CICHLOPS LINEATUS, Casteln.

Dampieria lineata, Casteln., Researches Fishes of Australia, p. 30.

D. 1/27. A. 3/-?

Height one-fourth of the length, length of snout one and a-half times the diameter of the eye; mouth very oblique with strong canines in both jaws; dorsal and anal fins prolonged behind, reaching over two-thirds of the tail. Colour in dried specimen yellow with an orange tinge on the back; sixteen narrow longitudinal black stripes on the body, beginning about one-third of its length, and extending to the base of the caudal; the anterior part of the dorsal is reddish with black spots; the posterior part black; pectorals and ventrals yellow.

Dampier's Archipelago.

Count Castelnau in his "Researches on the Fishes of Australia," gives a very elaborate description of this fish, making for its reception a genus which he named *Dampieria*. I cannot, however see sufficient reason for separating it from *Cichlops*.

GENUS STIGMATONOTUS, Peters.

Body elliptical, moderately compressed; mouth deeply cleft; præoperculum toothed; operculum armed, suborbital unarmed, narrow, with large pores; a band of small pointed teeth in the jaws, on the vomer and the palatine bones; scales ctenoid, lateral line incomplete. A long dorsal fin with fewer spines than rays. Anal spines three. Ventrals 1/5, somewhat before the pectorals; gill opening wide; branchiostegals six; gills three and a-half; free threadlike pseudobranchiæ; lower pharyngeals separated.

425. *STIGMATONOTUS AUSTRALIS*, Peters,

M.B. Ak. Berl., 1876, p. 838.—Zool. Reg. 1876, p. 20, Pisces.

D. 11/17. A. 3/8. L. lat. 46.

Dick Hartog Island, West Australia in three fathoms.

FAMILY XXIII. *BATRACHIDÆ*.

Habit cottoid; skin naked or with small scales, muciferous channels of head well developed. Teeth conical, small or of moderate size. The spinous dorsal fin very short, the soft and the anal long. Ventrals jugular, with two soft rays; pectorals not pediculated. Gill opening a more or less vertical slit before the pectoral, rather narrow. Gills three, pseudobranchiæ absent; an air-bladder.

Genus *BATRACHUS*, Bl.

Head broad, depressed; body subcylindrical anteriorly and compressed posteriorly; skin naked, or covered with very small scales. No canine teeth. Gill covers with several spines. The spinous dorsal fin consists of three stout spines. Gill opening narrow. Gills three; pseudobranchiæ none; branchiostegals six; air-bladder divided, pyloric appendages none. Vertebrae 12/17-27.

, Nearly all Coasts.

426. *BATRACHUS DUBIUS*, White.

Richards., Voy. Erebus and Terror, p. 16, pl. 10.—Gunth., Cat. Fishes III., p. 169.

D. 3/18. A. 15. V. 1/2.

The length of the head is three times and a-half in the length of the body; the width of the bony bridge between the orbits is one-seventh of the length of the head and equals the diameter of the eye, which is shorter than the snout. Gill covers with three spines directed backwards, two belonging to the operculum and one or the præoperculum. Vomer and palatine bones with a

single series of short conical teeth. Snout short, depressed, flat, surrounded by a wreath of short tentacles; the tentacles above the orbit very distinct. The maxillary extends to below the posterior margin of the orbit. A round foramen in the upper part of the axil. Brown, marbled with darker; some small, round deep black spots on the side of the body; dorsal fin with oblique brown bands, pectoral with many round white spots.

Port Jackson. Australian Coasts.

427. *BATRACHUS DIEMENSIS*, Lesseur.

Richards., Voy. Erebus and Terror, p. 17, pl. 8, f. 1-2.—Gunth., Cat. Fishes III., p. 170.

D. 3/20. A. 15-17. V. 1/2.

The length of the head is contained three times and three-fourths in the total; the bony bridge between the orbits is narrow, its width being one-eighth of the length of the head and much less than that of the orbit, which equals the length of the snout. Gill covers with four spines, two opercular and two subopercular, one of the latter small, and nearly obsolete in old specimens. Villiform teeth in jaws, vomer, and palatines. Snout short, obtuse (the upper profile parabolic) and surrounded by a wreath of tentacles, those above the orbits well developed, ciliated. The maxillary extends to below the middle of the orbit. No foramen in the axil. The outer ventral ray much longer than the inner one, tapering, nearly as long as the head. Brown marbled with darker.

Port Essington. Port Darwin. Cape Grenville (Chevert Exp.)

428. *BATRACHUS DUSSUMIERI*, Cuv. & Val.

Gunth., Cat. Fishes III., p. 169.—All. & Macl., Proc. Linn. Soc. N. S. Wales, Vol. I., p. 335.

D. 0/20, A. 16. V. 1/2.

Length of head three times and a-half in the total. Gill covers with three spines directed backwards, two opercular, one subopercular. The lower jaw and palate with narrow bands of villiform teeth. Snout broad, depressed, flat, surrounded by very short tentacles, that above the orbit very small. Brown, with three rather indistinct darker cross-bands. Fins immaculate.

Darnley Island (Chevert Exp.) very doubtful.

429. *BATRACHUS STRIATUS*, Casteln.

Pseudobatrachus striatus, Casteln., Res. Fishes Australia, p. 24.

D. 2/17. A. 14. V. 3.

Length of head three times and a-quarter in the total length, without caudal fin; the space between the eyes five times in the length of the head; and equal to the diameter of the eye; gill covers with three spines, two opercular one subopercular. Teeth short and conical. Tentacles round mouth and orbit rather short. Skin of body very loose and covered, as also the head, with strong longitudinal striæ. Colour brownish-black; length five and a-half inches.

Cape York.

Count Castelnau made a genus of this under the name of *Pseudobatrachius*, on account of the first dorsal fin being reduced to two very small spines, hidden under the skin, though very possibly the third may be too deeply hidden for recognition. If this were sufficient ground for division, we have already the genus *Thalassophryne*.

FAMILY XXIV. PEDICULATI.

Head and anterior part of body very large, without scales. Teeth in cardiform or villiform bands. The spinous dorsal fin either composed of a few more or less isolated spines, or entirely absent. Ventrals jugular with four or five soft rays; the carpal bones prolonged, forming a sort of arm for the pectorals. Gill

opening reduced to a small foramen, situated in or near the axil ; gills two and a-half to three and a-half. No pseudobranchiæ.

Genus BRACHIONICHTHYS, Bleek.

Head large, high, compressed ; cleft of mouth directed forwards ; jaws with cardiform teeth ; palate smooth. Body smooth, or covered with minute spines. Three slender dorsal spines, the two posterior connected by a membrane with each other, and with the soft portion ; the anterior modified into a tentacle, situated above the snout. The soft dorsal is longer than the anal. Stomach of moderate size ; no air-bladder or pyloric appendages.

Tasmanian Seas.

430. BRACHIONICHTHYS HIRSUTUS, Lacep.

Gunth., Cat. Fishes III., p. 182.

D. 1. 2/19. A. 9. P. 7. V. 1/4. Vert. 12/10.

The height of the body is one-fourth of the total length. Skin rough. The anterior dorsal spine is free, terminating in a small lobe ; the two others are joined into one fin, separate from the soft dorsal. Brownish-grey, with brown dots ; a black spot on the second, third, and fourth dorsal rays

Tasmania.

431. BRACHIONICHTHYS LÆVIS, Lacep.

Cuv., Mem. Mus., p. 435, pl. 18, f. 3.—Gunth., Cat. Fishes III., p. 182.

D. 3/16. A. 9. P. 7. V. 1/4.

Height of body one-fourth of total length ; skin nearly smooth, covered with minute spines. The dorsal spines are connected with one another and with the soft dorsal by a membrane, which however is notched between the first and second spines, and between the third and the soft dorsal. Reddish-brown.

Tasmania ?

432. BRACHIONICHTHYS POLITUS, Richards.

Chironectes politus, Richards., Voy. Erebus and Terror, p. 16, pl. 9, fig. 3.

D. 1. 2/17. A. 9. C. 9. P. 9. V. 1/4.

I have not seen a complete description of this Fish, but the skin is quite smooth, showing no roughness nor inequalities under a lens. It cannot therefore, as Dr. Gunther suggests, be identical with *B. laevis*, described above.

Port Arthur.

Genus ANTENNARIUS, Commers.

Head very large, high, compressed; cleft of the mouth nearly vertical; jaws and palate armed with cardiform teeth. Body naked or covered with minute spines. The spinous dorsal fin is composed of three isolated spines, the first modified into a tentacle placed above the snout. The soft dorsal of moderate length, longer than the anal. No cleft behind the fourth gill; only half of the anterior branchial arch provided with lamellæ. No pseudobranchiæ. Stomach very wide; no pyloric appendages, an air-bladder.

Tropical Seas.

433. ANTENNARIUS MARMORATUS, Less.

Gunth. Cat. Fishes III., p. 185.—Journ. Mus. Godeff., Heft. XI., pl. 100, fig. A.

Chironectes vittatus, Richards., Voy. Erebus and Terror, p. 15, pl. 9, fig. 3-4.

D. 3/12. A. 7. P. 10. Vert. 9/9.

The anterior dorsal spine is short, terminating in a small knob, with a minute tentacle attached to it, sometimes it is very short or entirely absent. The last dorsal extends beyond the root of the caudal. Head and body with cutaneous tentacles, those on

the angle of the mouth, and on the belly the most conspicuous ; each tentacle of the latter rooting in the centre of a round white spot ; the second and third dorsal spines fringed on the top. Ground colour, yellowish or reddish, largely marbled with brown ; brown spots radiating from the eye ; most of the spots edged with white. Round white spots on the sides of the body, and more crowded on the belly.

Port Jackson.

A species of wide range, very variable and with many synonyms.

434. *ANTENNARIUS STRIATUS*, Shaw.

Nat. Misc. V., pl. 175.—Gunth., Journ. Mus. Godeff., Heft. XI.,
pl. 92, fig. B.

D. 3/12. A. 7. P. 10.

The anterior dorsal spine is as long or slightly longer than the second, terminating in three long cutaneous flaps, the second and third with a cluster of small cutaneous growths at their tips. Skin very rough. Colour yellowish with many brown radiating streaks over the head and body ; the fins are spotted besides.

Port Jackson ; common.

435. *ANTENNARIUS PINNICEPS*, Cuv. & Val.

Gunth., Cat. Fishes III., p. 190.—Ann. and Mag. Nat. Hist.,
1867, XX., p. 61.

D. 3/12. A. 7. P. 10.

The anterior dorsal spine as long as the second, terminating in three lanceolate flaps. The dorsal fin terminates at a considerable distance from the caudal. Skin rough, covered with small spines and small cutaneous fringes. Yellowish, irregularly spotted and streaked with brown ; streaks radiating from the eye ; a series of large, round, brown spots along the middle of the dorsal ; the dorsal and anal with round spots.

Sydney (Gunther).

436. ANTENNARIUS COCCINEUS, Less. & Garn.

Voy. Coq., Poiss., p. 143, pl. 16, f. 1.—Gunth., Cat. Fishes III.,
p. 191.

D. 3/12. A. 7.

The head and snout are so short, that the cleft of the mouth ascends in an oblique line, which is somewhat directed backwards. The anterior dorsal spine is short, stiff, terminating in a small simple tentacle, situated between the eyes. Skin rough, covered with small spines without cutaneous fringes; the third dorsal spine nearly hidden in the skin. Red, clouded with blackish and greyish; region above the pectoral blackish.

Port Jackson (Macl. Mus.)

437. ANTENNARIUS UROPTHALMUS, Bleek.

Gunth., Cat. Fishes III., p. 192.

Chironectes caudimaculatus, Rich., Voy. Erebus and Terror, p. 125,
pl. 60, f. 8-9.

D. 3/13. A. 8. P. 9.

Anterior dorsal spine rather short, terminating in a ciliated flap; the third dorsal spine is connected by a membrane with the base of the soft dorsal. The dorsal and anal fins extend to the root of the caudal. Skin rough, covered with small spines and scattered cutaneous fringes, two at the chin being the longest. Orange-coloured, densely spotted and reticulated with black, the membrane between the caudal rays with transparent ocelli, edged with black.

Port Darwin.

438. ANTENNARIUS COMMERSONII, Lacep.

Gunth., Cat. Fishes III., p. 192.—Journ. Mus. Godeff., Heft. XI.,
plates 100—106.

D. 3/13-14. A. 7-8. P. 9-11.

Skin very rough, covered with small spines. The anterior dorsal spine much longer than the second, terminating in a fringed lobe. The dorsal fin terminates near the caudal, the last rays extending to the caudal fin. Nearly uniform black or brownish-black, with some white spots; pectorals and ventral fins white-edged.

Port Darwin; many varieties.

439. *ANTENNARIUS TRISIGNATUS*, Richards.

Voy. Erebus and Terror, Fishes, p. 15, pl. 9, fig. 1.

D. 3/13. A. 7. C. 9. P. 9. V. 5.

The first dorsal spine is long, slender, and terminates in a single cutaneous flap, the third is enveloped in the skin. Skin rough. Colour greyish, with a purplish reflection, and a minute reticulation of lighter lines. A round black spot at the base of the dorsal fin near its middle, another above the anus, and a third above the pectoral arm; an irregular whitish mottled band extends from the commencement of the soft dorsal to the rays of the pectoral. A similar band encircles the root of the tail, on the tail itself there are a number of transparent spots.

King George's Sound (Richards.).

440. *ANTENNARIUS FILAMENTOSUS*, Casteln.

Proc. Zool. Soc., Victoria, Vol. II., p. 65.

D. 3/13. A. 8. P. 11.

The first dorsal spine is long, slender, and terminates in six or seven long tentacles, with, on each side of it, another slender filiform tentacle. Skin not spiny, but covered with large fringes, the mouth is broad, the lips tuberculose. Colour light brown, with several very large, black blotches on the body, but none on the fins, nor on the lower parts of the body; some silvery-white,

small and irregular spots on the cheeks, inside the mouth and the tongue covered with white tubercles.

South Australia.

441. *ANTENNARIUS SUBROTUNDATUS*, Casteln.

Researches Fishes of Australia, p. 25.

Body high; upper profile circular, lower very convex, skin covered with rough asperities; tentacle of the snout terminating in a short linear filament; the second and third dorsal spines about equal and very thick, and covered with asperities; all the fins immaculate. Body light yellowish-grey, with a double series of ocellated spots on each side of the body, some of them visible on the belly. An irregular whitish ring on the base of the tail; no cutaneous tentacles on the body.

Port Walcott, West Australia (Castelnau).

442. *ANTENNARIUS ASPER*, *n. sp.*

The first dorsal spine slender, ringed with black, much longer than the second and terminating in a fringed knob, the next two prominent and spinose. Skin very rough and spiny. Colour yellow, spotted rather densely all over with brown; about the middle of the base of the dorsal fin a rather large, rounded, black spot in the centre of a yellow space. Tail with three series of transparent black-edged spots on the membrane between the rays.

Darnley Island (Chevert Exped.)

Mistaken by Dr. Alleyne and myself for *A. urophthalmus*. (Proc. Linn. Soc. N.S. Wales, Vol. I., p. 335.

FAMILY XXV. COTTINA.

A bony stay for the angle of the præoperculum, which is armed; the bone arising from the infraorbital ring. Body naked or covered with ordinary scales, or incompletely cuirassed with

single series of plate-like scales. The spinous dorsal fin less developed than the soft or than the anal.

Genus *PLATYCEPHALUS*, Bl.

Head broad, very depressed, more or less armed with spines; body depressed anteriorly, sub-cylindrical posteriorly; covered with ctenoid scales. Lateral line present. Two dorsal fins, the first spine isolated; ventrals thoracic but rather remote from the root of the pectorals, no pectoral appendages. Jaws, vomer, and palatine bones with bands of villiform teeth. Air-bladder none; pyloric appendages in moderate number.

Indian and Polynesian Seas.

443. *PLATYCEPHALUS INSIDIATOR*, Forsk.

Gunth., Cat. Fishes II., p. 177.—Bleek., Atl. Ichth. Platyc., pl. 1, fig. 3.

D. 1. 6-7/13. A. 13. L. lat. 120. Cæc. pylor. 8. Vert. 12/15.

The length of the head is three times and three-quarters in the total length, and its width between the præopercular spines once and a-half in its length; the distance between the eyes is one-half the length of the snout. The upper surface of the head is quite flat, the ridges being scarcely prominent. Two moderate præopercular spines, the upper rather shorter than the lower. The length of the second dorsal spine is less than half that of the head. Lateral line smooth. The upper half of the caudal fin with two oblique black bands, the lower with one or two.

Western Australia, North-west Australia, Cape York.

444. *PLATYCEPHALUS BASSENSIS*, Cuv. & Val.

P. tasmanius, Richards., Voy. Erebus and Terror, p. 23, pl. 18, f. 1-2.—Gunth. Cat. Fishes II., p. 179.

The "*Red Flathead*," Sydney Market.

D. 1. 7/14. A. 14. L. lat. 115.

The length of the head is three times and a-half in the total, and its width between the præopercular spines once and a-half in its length. The space between the eyes is slightly concave and one-third the length of the snout. The upper surface of the head is flat, the ridges being scarcely prominent. Two præopercular spines, the lower much the longest; the second dorsal spine is rather less than half the length of the head. Lateral line smooth. Colour reddish, with a number of obscure spots, larger on the sides; dorsal, ventral, and pectoral fins spotted with brown; the posterior portion of the caudal black.

Tasmania, Melbourne, Sydney.

445. *PLATYCEPHALUS FUSCUS*, Cuv. & Val.

Castelnau, Proc. Linn. Soc. N. S. Wales, Vol. III., p. 379.

The "*Flathead*" of the Sydney Market.

Port Jackson, Port Phillip.

446. *PLATYCEPHALUS LÆVIGATUS*, Cuv. & Val.

Gunth. Cat. Fishes II., p. 179.—Casteln., Proc. Zool. Soc. Victoria, Vol. I., p. 84.

The "*Rock Flathead*" of the Melbourne Market.

D. 1. 8/14. A. 14.

Head with the ridges scarcely visible, and without any spines; the upper præopercular spine is twice as long as the lower. The space between the eyes is one-half only of their vertical diameter. Brown above, white below; anal fin white, the others spotted with brown.

Western Port, Port Phillip, Western Australia.

447. *PLATYCEPHALUS PROXIMUS*, Casteln.

Proc. Zool. Soc. Victoria, Vol. I., p. 85.

In general aspect like *P. lævigatus*, but differs in having the head broader in front; the eye larger and more oval; the teeth

more numerous and finer ; and the spinous dorsal fin only $1/7$. Colour purplish-blue above, white beneath, with a few transverse spots, upper half of pectorals and inner half of dorsal fin black.

Melbourne ; scarce.

448. *PLATYCEPHALUS RICHARDSONII*, Casteln.

Proc. Zool. Soc., Victoria, Vol. I., p. 82.

D. 1. $7/14$. A. 14.

Width of body six times, and length of head three and a-half times in the total length ; orbit five times in the length of the head, or six times to the end of the operculum. Head very flat and broad, rounded in front, the transverse line before the eyes being once and a-half in the length of the head ; the lower jaw longer than the upper ; the ridges on the top of the head prominent and interrupted ; the præopercular spines very strong, the lower being a little the longest. Colour olive-brown with numerous crimson spots, sides grey, belly white ; dorsal fins spotted with brown ; caudal, ventral and pectoral fins with transverse lines of orange with crimson spots ; the hinder part of the tail black.

Melbourne.

449. *PLATYCEPHALUS STAIGERI*, Casteln.

Researches on the Fishes of Australia, p. 17.

D. 1. $7/11$. A. 11.

General form elongate and narrow ; the length of the head is one-third of the total length (without caudal) and its greatest width half of its length ; the eye is four times and one-third in the length of the snout, and the space between the eyes twice and a quarter ; the superocular ridges are very high, sharp, and serrated, forming in front of the eye a sharp hook, and running posteriorly into several radiating ridges. Only one præopercular spine. Colour almost black, with faint blacker transverse stripes ;

belly whitish, fins yellow with small black spots and lines; the upper half of the first dorsal is black; the anal is white terminating in black tipped with orange; sides of head marbled with yellow.

Queensland.

450. *PLATYCEPHALUS CINEREUS*, Gunth.

Proc. Zool. Soc., London, 1871, p. 661.

D. 1. 7/12. A. 12. L. lat. 120.

The length of the head is two-sevenths of the total, (without caudal), its width between the præopercular spines is once and three-fourths in its length. Upper surface of head smooth, without spines, except a minute one in front of the eye. Præopercular spines short, subequal in length, or the lower somewhat longer. Maxillary teeth villiform in a broad band, with two pair of distinct canine teeth behind on the side of the symphysis; mandibular and palatine bands much narrower, with a series of longer conical teeth; vomerine band continuous, crescent shaped, narrowest in the middle, broadest towards each extremity, where also some larger conical teeth are mixed with the villiform teeth. Inter-orbital space but slightly concave, scaly, its width equal to the diameter of the eye, which is contained twice and one-third in the length of the snout. Eye without tentacle; the isolated dorsal spine short and stiff. Upper parts nearly uniform blackish-ash; dorsal fins without spots, transparent; caudal mottled with black, without bands; pectorals and ventral fins brown, with whitish reticulations.

South Australia.

451. *PLATYCEPHALUS INOPS*, Jenyns.

Gunth., Cat. Fishes II., p. 180.

D. 1. 7/12. A. 12.

The length of the head is nearly twice its own breadth, and nearly one-third of the total length. Head without spines, presenting the usual ridges, which however are not very salient, the præopercular spines very short, of equal length, the lower one rounded off almost to nothing. Lateral line perfectly smooth. Above uniform deep brown, beneath white, the two colours separate by a well-defined line. First dorsal fin with a very large deep brown blotch; the second dorsal, caudal, and pectorals spotted; the anal and ventral uniform blackish-brown. (Jen.)

King George's Sound.

452. *PLATYCEPHALUS JAPONICUS*, Cuv. & Val.

Gunth. Cat. Fishes II., p. 181.

D. 1. 7/12. A. 12. L. lat. 100. Vert. 12/15.

The length of the head is three times and a-fifth in the total length, and its width between the præopercular spines once and four-fifths in its length; the distance between the eyes is one-fifth of the length of the snout, and concave. A series of spines along the superciliary margin, a second from the eye to the scapular, and a-third of two spines on the infraorbital ring, there are a pair of turbinal, and a pair of occipital spines besides. Two præopercular spines of rather small size, the upper the larger. The length of the third dorsal spine is twice and a-third in the length of the head. Lateral line smooth. A tongue-shaped membranaceous flap below the præopercular spines. Reddish-olive, dotted with brown; six brown bars across the back; the first dorsal with a broad oblique blackish band; the other fins spotted with brown.

Port Darwin.

453. *PLATYCEPHALUS ISACANTHUS*, Cuv. & Val.

Gunth., Cat. Fishes II., p. 183.

D. 1. 8/12. A. 12.

The first dorsal spine rather long and slender ; the præopercular spines short and nearly equal ; spines on the crown of the head and the orbit ; a pair of turbinal spines ; lateral line smooth ; no tentacle above the orbit. Brown, with obsolete cross-bands ; all the fins dotted with brown.

Port Darwin, Palm Islands, Cape Grenville.

454. *PLATYCEPHALUS NEMATOPHTHALMUS*, Gunth.

Gunth. Cat. Fishes II., p. 184.

D. 1. 8/11 A. 11. L. lat. 105.

The length of the head is three times and a-half in the total length ; the ridges of the head with some small spines. A tentacle of moderate length above the orbit ; a single flat one below the angle of the præoperculum, none at the nostril. Præopercular spines rather short, of nearly equal size. Lateral line smooth. Brownish with seven darker cross-bands on the back ; fins spotted with brownish ; the spines and rays of the dorsal and caudal fins crossed by fine black lines.

Port Essington. Port Darwin.

455. *PLATYCEPHALUS CIRRONASUS*, Richards.

Voy. Erebus and Terror, p. 114, pl. 51, f. 7-10.—Gunth., Cat. Fishes II., p. 186.

D. 1. 8/12. A. 11. L. lat. 60.

Each nostril with a cirrus of moderate length. The length of the head is one-third of the total, and its width between the præopercular spines once and five-sixths of its length. The space between the eyes is very concave, and four times and a-half in the length of the snout. Prominent spines on the upper side of the head, but none on the infraorbital ring. Two small spines at the angle of the præoperculum. Lateral line smooth. Rose-coloured, with some violet spots along the base of the dorsal fin,

and some darker bars across the back of the tail. Fins dotted with rose-colour.

Botany Bay. Port Jackson.

456. *PLATYCEPHALUS CASTELNAUI*, *n. sp.*

D. 1. 7/14. A. 14.

Width of head between the præopercular spines about one-fourth of total length; space between the eyes very slightly concave and less than the diameter of the eye, the longitudinal diameter of which is scarcely twice in the snout; some strong teeth on the vomer and symphysis of the upper jaw. Head scaly to the muzzle, the ridges flat and very slightly spinous. The præopercular spines of moderate length, diverging, equal in length and very acute, the ridges in which they terminate parallel and well marked from the angle of the mouth and with about eight slight quadrangular depressions between them. Colour brown above with several indistinct darker cross-bands, white below; the line of demarkation on the side distinct but not straight. Fins transparent, the soft dorsal, pectorals, ventrals, and caudal more or less spotted with brown, appearing on the tail to form cross-bands.

King George's Sound (Macl. Mus.)

Genus *NEOPLATYCEPHALUS*, Casteln.

Form of *Platycephalus*, but having the villiform teeth very numerous, and interspersed with sharp canine teeth on both jaws and on the palatines.

If this genus be considered necessary, it will comprise *P. cinereus*, Gunth., and *P. Castelnaui*, mihi, and probably others now placed in the genus *Platycephalus*.

457. *NEOPLATYCEPHALUS GRANDIS*, Casteln.

Proc. Zool. Soc., Victoria, Vol. I., p. 87.

D. 1. 8/14. A. 14.

Length of head three times and two-thirds in the total; orbit seven and a-half times in length of head; the snout is rather angular in front; the upper surface of the head is smooth and presents faint uninterrupted longitudinal lines; præopercular spines strong, the lower nearly or quite twice the length of the upper. General colour pink-lilac, covered with numerous irregular orange spots; the sides yellow; the fins are transparent and rather grey; their spines and rays are marbled with orange; the caudal has four transverse lines of rather large, rounded, orange spots, and its end is black.

Melbourne; not common. Length from 20 to 23 inches.

Genus LEPIDOTRIGLA, Gunth.

Head parallelopiped, with the upper surface and the sides entirely bony; body with scales of moderate size, regularly arranged. Two dorsal fins, the first much shorter than the second. Three pectoral filaments. Villiform teeth in both the jaws and on the vomer, none on the palatine bones. Air-bladder generally with lateral muscles, often divided into two lateral parts; pyloric appendages in moderate number.

Indian and Pacific Oceans. Mediterranean Sea.

458. LEPIDOTRIGLA PAPILIO, Cuv. & Val.

Gunth. Cat. Fishes II., p. 197.

D. 9/14. A. 14. L. lat. 55. Cæc. pylor. 7.

Scales very regular, of moderate size, with spines on the free margin, those of the lateral line with a spiny keel. Præorbital not projecting beyond the snout. The spines of the dorsal rather strong and bent; the spines along the base of the dorsal fin strong, prominent, compressed. The pectoral reaches to the sixth anal ray. The first dorsal with a black spot between the fourth and seventh spines.

Port Jackson (Macl. Mus.)

459. *LEPIDOTRIGLA PHALÆNA*, Cuv. & Val.

Gunth., Cat. Fishes II., p. 197.

D. 9/15. A. 14.

Scales very regular, of moderate size, with spines on the free margin; those of the lateral line with a spiny keel. Præorbital not projecting beyond the snout. The spines of the dorsal rather slender and erect; the spines along the base of the dorsal fins slightly prominent. The pectoral with cross-streaks; the first dorsal with a black spot between the fourth and seventh spines.

Melbourne (Gunther).

460. *LEPIDOTRIGLA SPHYNX*, Cuv. & Val.

Gunth., Cat. Fishes II., p. 197.—Casteln., Proc. Zool. Soc., Victoria, Vol. I., p. 89.

D. 9/14. A. 14. Cæc. pylor. 7.

Scales as in the two previous species, lateral line with spiny keel. The spines of the dorsal fin not strong, those along the base of the dorsal fins strong, prominent, and compressed. The first dorsal with a rather large, black, white-edged spot; large rounded black spots on the back and sides.

Melbourne, (Castelnau).

461. *LEPIDOTRIGLA VANESSA*, Richards.

Gunth., Cat. Fishes II., p. 197.—Casteln., Proc. Zool. Soc. Vict., Vol. I., p. 89.

D. 11/17. A. 17. L. lat. 70. Cæc. pylor. 8.

Scales very regular, of moderate size, those of the lateral line with very distinct spines. The snout is rather short with the upper profile concave. Præorbital anteriorly with a triangular spine. The pectoral fin spotted and reaching to the seventh anal ray.

Port Arthur, Tasmania. Melbourne.

Genus *TRIGLA*, Artedi.

Head parallelopiped, with the upper surface and the sides entirely bony; body with exceedingly small scales, those of the lateral line sometimes larger. Two dorsal fins. Three pectoral filaments. Villiform teeth in both jaws and on the vomer, none on the palatine bones, Air-bladder generally with lateral muscles, often divided into two lateral parts; pyloric appendages in moderate number.

Nearly all Seas.

462. *TRIGLA PLEURACANTHICA*, Richards.

Voy. Erebus and Terror, Ichth., p. 23, pl. 16, f. 1-4.—Gunth., Cat. Fishes II., p. 202.

D. 8/14. A. 14. L. lat. 55.

Along the lateral line a series of imbricate, scaly plates, each angularly bent, and the edge terminating in a strong spine; the other scales small. The snout of moderate extent with the upper profile slightly concave. Traces of a black spot on the fourth, fifth, and sixth dorsal spines.

Port Jackson. (Richardson.)

463. *TRIGLA KUMU*, Less. & Garn.

Voy. Coquille, pl. 19.—Gunth., Cat. Fishes II., p. 204.

D. 9-10/16-17. A. 15. Cæc. pylor. 6.

Scales extremely small, those of the lateral line without any armature; the snout is elongate, the upper profile straight; the space between the eyes concave, and less than the diameter of the eye in width. Præorbital anteriorly with obtuse points; no prominent ridge along the præorbital and the angle of the præoperculum; no spine between the orbit and the superscapula. The first dorsal spine smooth, or very little granular, the second the longest, and equal to the distance between the anterior nostril and the angle of the præoperculum. The pectoral fin reaches

to the vertical from the tenth dorsal ray. Reddish, pectoral fins greenish-blue with a large black blotch and several white spots.

Port Jackson.

464. *TRIGLA POLYOMMATA*, Richards.

Trans. Zool. Soc., Vol. III., p. 87, pl 5, f. 2.—Gunth., Cat. Fishes II., p. 204.

“*The Flying Gurnet.*”

D. 9/15. A. 14. Cæc. pylor. 8.

Scales exceedingly small. Præorbital, suprascapula, coracoid, operculum, præoperculum with very long and strong spines; the space between the eyes very concave and equal to the diameter of the eye in width. Dorsal spines rather stout. The pectoral fin reaches to the vertical from the tenth anal ray. Red, pectorals greenish beneath reticulated with blue, and with, on the inner side, two large, oblong, black, white-edged spots.

Port Jackson. Port Phillip. Western Australia.

465. *TRIGLA AMENA*, Casteln.

Proc. Zool. Soc., Victoria, Vol. II., p. 131.

D. 9/15. A. 14.

Scales very small, those on the lateral line without any armature; snout elongate; upper profile concave; the anterior part of the head rather bilobed; the space between the eyes very concave, and less in width than the diameter of the eye. A crenulated ridge in front of the orbit, the inferior part of the præoperculum forming a prolonged angle, but no point; the pectoral fins reach to the vertical from the tenth anal ray. Colour lavender-grey, with the lower parts silvery and of a light milky-blue; a black blotch from the first to the third dorsal spines; pectorals olive-green, with numerous oblong spots of a dull cobalt, and a large black blotch near the inner-side.

West Australia. Length six to eight inches.

Genus BERIDIA, Castelnau.

Proc. Linn. Soc. N. S. Wales, Vol. II., p. 229.

466. BERIDIA FLAVA, Casteln.

Proc. Linn. Soc. N. S. Wales, Vol. II., p. 229, pl. 2.

Portland Bay, Victoria.

FAMILY XXVI. CATAPHRACTI.

Triglidæ with the body completely cuirassed with bony keeled scales or plates. Pyloric appendages in small or moderate number.

Genus DACTYLOPTERUS, Lacep.

Head paralleliped, with the upper surface and sides entirely bony; scapula and angle of the præoperculum produced into long spines; body with scales strongly keeled and of moderate size; lateral line none. Two dorsal fins; pectoral very long with the lower portion detached and shorter. Granular teeth in the jaws, none on the palate.

Nearly all Seas.

467. DACTYLOPTERUS ORIENTALIS, Cuv. and Val.

Gunth., Cat. Fishes II., p. 222.

D. 1/1/5/8. A. 6. Cæc. pylor. 19.

A long isolated ray-like filament behind the occiput, another shorter one half way between the former and the dorsal fin, the first dorsal spine detached from the others. The distance between the eyes is one-third of the length of the head, and nearly equal to that of the præopercular spine; the distance between the two scapular spines is rather less than the depth of the notch between. Pectoral fins spotted with brown and dotted with bluish-white.

Port Jackson. Endeavour River.

DIVISION IX. ACANTH. GOBIIFORMES.

The spinous dorsal or spinous portion of the dorsal always present, short, either composed of flexible spines or much less developed than the soft; the soft dorsal and anal fins of equal extent. Ventrals thoracic or jugular, if present, composed of one spine and five, rarely four soft rays. A prominent anal papilla.

FAMILY XXVII. GOBIIDÆ.

Body elongate, low, naked or scaly. Teeth generally small, sometimes with canines. The infraorbital ring does not articulate with the præoperculum. The two dorsal fins separated or more or less united, the spinous portion being always the less developed and composed of flexible spines; the anal similarly developed as the soft dorsal; ventrals with one spine and five rays, sometimes both ventrals united into a disk. Gill openings more or less narrow, the gill membrane being attached to the isthmus; four gills; pseudobranchiæ. A prominent papilla near the vent. Air bladder generally absent. Pyloric appendages none.

Genus *Gobius*, Artedi.

Body more or less elongate, scaly. Teeth in several series in the upper jaw, conical and fixed, generally small, sometimes with canines. Two dorsal fins, the anterior with six, rarely with five or more flexible spines, the posterior of greater, sometimes much greater extent than the anterior. Anal fin similar to the posterior dorsal in form and size, terminating at some distance from the caudal. Ventrals united into a disk which is not attached to the belly. Anal papilla generally distinct. Gill opening vertical, of moderate width, the gill membranes united to the isthmus. Branchiostegals five; gills four; pseudobranchiæ. Vertebrae 11-12/15-16.

Found in all seas and in many rivers.

468. *Gobius ornatus*, Rüpp.

Gunth., Cat. Fishes III., p. 21.

G. interstinctus, Richards, Voy. Ereb. and Terr., p. 3, pl. 5, f. 3-6.

D. 6. 1/10-11. A. 1/8-9. L. lat. 26.

Seven longitudinal series of scales between the second dorsal and the anal fin. The height of the body is six or seven times in the total length, the length of the head four times and a-half; the head is rather broader than high, its width being one and a-half times in its length. The eyes are very close together; their diameter is three times and a-half in the length of the head. Snout obtuse, convex, as long as the eye. Crown of the head scaly. The cleft of the mouth scarcely oblique, the jaws about equal in length. All the teeth very small. Dorsal fins somewhat lower than the body; caudal rounded; the upper rays of the pectoral silk-like. Green, with numerous brown spots and yellow dots; all the fins, except the ventrals, dotted with black.

Port Darwin. North-west Australia.

469. *Gobius giuris*, Buch.

Gunth., Cat. Fishes III., p. 21. Many synonyms.

B. 4. D. 6/9. A. 1/8. L. lat. 30-33. Vert. 11/16.

Nine or ten scales between the second dorsal and anal fins. Snout elongate, depressed, with the lower jaw prominent; head broader than high; the teeth of the outer series enlarged; no canines. Scales of neck much smaller than those on sides of body. The height of the body is one sixth or one-seventh of the total length; the length of the head one-fourth. The interorbital space is flat; and in immature specimens narrow. Dorsal fins about as high as the body, the spines sometimes a little prolonged in adults. The distance of the first dorsal from the eye, about equals that of the snout from the præoperculum. No silk-like pectoral rays; the ventrals reach nearly to the vent. Yellowish-brown with more or less distinct brown bands across the back and with a

series of round, brown, blotches along the sides. Pectoral, dorsal and caudal fins with series of brown dots, the former with a small brownish spot on the upper part of the base; generally a brown cross-streak between the eyes.

Port Darwin (Macl. Mus.)

470. *Gobius albopunctatus*, Cuv. & Val.

Gunth., Cat. Fishes III., p. 25.

D. 6. 1/9. A. 1/8. L. lat. 35.

Ten longitudinal series of scales between second dorsal and anal fins. Head broader than high; no canine teeth. Height of body five-times and a-half in the total length, the length of the head four times and a-third. Snout somewhat longer than the diameter of the eye; interorbital space narrow. Dorsal fins not very close together, the anterior lower than the posterior, which is nearly as high as the body. The distance of the first dorsal from the eye equals that of the snout from the præoperculum. Upper pectoral rays silk-like; the ventral has the basal membrane well developed, and does not extend to the vent. Scales on the nape smaller than those on sides of body. Reddish-brown (in spirits) marbled with darker, sides of head and body dotted with silvery, the dots forming series along the rows of the scales. Dorsal and caudal fins greyish, dotted with black, the dots forming three series on the anterior dorsal, and two on the posterior; the other fins uniform greyish.

Port Essington. Port Darwin.

471. *Gobius criniger*, Cuv. & Val.

Richards, Voy. Ereb. and Terr., p. 2, pl. 1, f. 3-4.—Gunth., Cat. Fishes III., p. 29.

B. 4. D. 6. 1/9. A. 1/9. L. lat. 34.

Nine series of scales between second dorsal and anal fins. Height of body one-sixth of total length, length of head one-

fourth; the latter is nearly half as high as long, a quarter less broad than high. The eye occupies the second quarter of the length of the head; the width of the interorbital space is one half of the diameter of the eye. Snout short; teeth small. Head and neck naked. The dorsal fins equal in height, as high as the body; the second spine sometimes produced, filiform; caudal rounded; none of the pectoral rays silk-like. Pale ochreous; head, body, dorsal, and caudal fins irregularly spotted with black, some of the spots being very large; caudal and anal fins with black margins.

North-west Coast. Port Darwin. Darnley Island.

472. *Gobius darnleyensis*, All. & MacL.

Proc. Linn. Soc. N.S. Wales, Vol. I., p. 331, pl. 12, fig. 1.

Darnley Island (Chevert Exp.)

473. *Gobius nigripinnis*, All. & MacL.

Proc. Linn. Soc. N.S. Wales, Vol. I., p. 332, pl. 12, fig. 2.

Palm Islands (Chevert Exp.)

474. *Gobius maxillaris*, MacL.

Proc. Linn. Soc. N.S. Wales, Vol. II., p. 357, pl. 9, fig. 2.

Port Darwin.

475. *Gobius frenatus*, Gunth.

Gunth., Cat. Fishes III., p. 39.

D. 6. 1/10. A. 1/10. L. lat. 35.

Ten series of scales between the second dorsal and the anal fin. Height of body nearly six times in the total length, the length of head four times and a-half; the head is higher than broad; the snout obtuse, convex, much longer than the eye; the cleft of the mouth oblique, jaws equal; the maxillary reaches the vertical from the anterior margin of the eye. Teeth of the outer series

enlarged, a canine tooth on each side of the lower jaw. The width of the interorbital space is somewhat less than the diameter of the eye, which is nearly one-seventh of the length of the head. Head and nape naked. The dorsal fins are equal in height, and lower than the body, the second, third, and fourth spines are the highest, terminating in very fine short filaments; caudal fin rounded, one-fifth of the total length; the ventral reaches nearly to the vent; none of the pectoral rays silk-like. Brown, (in spirits) with darker spots; head with indistinct darker spots; a blackish band edged with lighter from the maxillary to the lower part of the root of the pectoral, another, narrower, and sometimes indistinct, runs parallel to the former to the upper part of the root of the pectoral; dorsals with a transparent margin, the anterior brownish, the posterior with oblique blackish lines; the upper half of the caudal with brown crescent shaped dots between the rays, anal, ventral and pectoral blackish; the latter with the base of lighter colour and with two blackish spots produced by the bands described.

Australia (Gunther).

476. *Gobius bifrenatus*, Kner.

Kner., Voy. Novara, Fishes, p. 177, pl. 7, fig. 3.

Gobius bassensis, Casteln., Proc. Zool. Soc., Victoria, I., p. 123.

D. 6/11. A. 11. L. lat. 38-40.

Height of body seven times and one-third in the total length; head four times and two-thirds; eye four times and a-third in length of the head; no canine teeth. Head and nape naked; caudal fin as long as the head and pointed; no silk-like pectoral rays. Colour lightish-grey, rather darker on the back, a brown band from the eye to the upper edge of the root of the pectoral fin, a second descends obliquely from beneath the first, to the lower part of the pectoral, both bands distinctly marked on the base of the fin. The dorsal fins are marked by a longitudinal

narrow brown band ; the caudal has several transverse series of spots on its upper half ; the anal and ventrals are white, without spots ; pectorals yellowish. A series of large spots forming a longitudinal line on the sides of the belly.

Melbourne. Port Jackson.

477. *Gobius CASTELNAUI*, *n. sp.*

Gobius frenatus, Casteln., Proc. Zool. Soc., Victoria, I., p. 123.

D. 6. 1/10. A. 1/10. L. lat. 36.

Height of body six times and one-third in the total length ; dorsal spines all soft ; one canine tooth on each side of the lower jaw. Caudal fin rather rounded and subelongate. Of a light green colour, with two irregular longitudinal black bands on the operculum which curve downwards below the eye. There are some light blue spots on the operculum, and a double longitudinal series of similar spots on the body. The dorsal fins are green, finely edged with black ; the caudal has the base reddish ; the anal is of the general ground colour, but covered with very minute black dots ; the ventrals are green with a large black blotch, the pectorals are olive-green with the opercular bands marked on their base.

Hobson's Bay (Castelnau).

Count Castelnau has given the foregoing description of a Melbourne species, under the impression that it was the *G. frenatus* of Gunther. It is evidently quite distinct and I have therefore given it the name of its original describer.

478. *Gobius SEMIFRENATUS*, *n. sp.*

D. 6/11. A. 11. L. lat. 31.

Eight series of scales between the second dorsal and anal fins ; height of body one-seventh of the total length ; space between the eyes less than half their diameter ; length of snout more than their diameter ; caudal fin pointed ; no canine teeth. Reddish-

brown, with eight or nine fascia-like blotches on the sides, the sides of the head are marked with brown bands as in *G. frenatus*, there are numerous brown spots on the head and lips, and one on the lower part of the operculum, the scales of the body have each a pale pearly or bluish spot; the first branchiostegal also is margined at the angle with black. The fins are for the most pale and semitransparent; both dorsals are dotted with brown; there are also minute brown dots on the rays of the tail, except on the upper and lower margins and the extremity; the ventrals are sometimes darker in centre.

Port Jackson.

479. *Gobius pictus*, Casteln.

Proc. Zool. Soc., Victoria, I., p. 124.

D. 8. 1/10. A. 1/9.

The height of the body is five and a-half times in the total length; the lower jaw longer than the upper; scales large; the second dorsal spine longer than the others. Colour light lilac, beneath white; on the head are numerous small, brown spots, and on the back and sides also there is a longitudinal line of black spots with terminals and a large one at the root of the caudal, on which are also two or three irregular black spots; the pectorals are yellow; the ventrals white; the eye is yellow with an external red circle; the first dorsal is white with two broad, longitudinal brown bands; the second dorsal is white, diaphanous, with the spine brown and the rays variegated with brownish red, and a broad terminal brown band; the caudal has three transverse brown-light-red bands; the anal is white.

St. Kilda, Melbourne (Castelnau).

480. *Gobius pulchellus*, Casteln.

Proc. Zool. Soc., Victoria, I., p. 125.

D. 6/12. A. 1/9. L. lat. 23.

Height of body four times and three-quarters in the total length; head three and a-half times. Eyes rather large, placed on the upper surface of the head; the first dorsal fin rounded, the third spine longest, the caudal is rounded; pectorals extending to nearly the end of the first dorsal. Colour light grey, with the edges of the scales brown, towards the belly opal and white; head marbled with white spots, operculum with very minute, black dots; three large, round, black spots on the sides—opposite the commencement of the second dorsal, opposite its termination, and at the root of the tail. The dorsal fins hyaline, spotted with brown, a black spot at the commencement of the first, and the second margined with yellow. Caudal spotted with brown, the spots forming five or six transverse lines, anal white, edged with black; pectoral yellow with very small dots.

Western Port (Castelnau).

481. *Gobius caudatus*, Casteln.

Proc. Zool. Soc., Victoria, Vol. II., p. 47.

D. 6/11. A. 11.

Height of body four times in the length (without caudal); head four times; eye three and a-half times in the length of the head; lower jaw longer than the upper; teeth small, some rather longer than others; the fifth dorsal spine the longest, produced into a short filament; the last ray of the second dorsal and anal fins somewhat elongate; the caudal large, pointed, the central rays produced into filaments; half as long as the body. Colour (dried) light brown, with obscure spots, a dark oblique band from the eyes to the operculum; fins diaphanous, an obscure band along the middle of the first dorsal, the soft dorsal and anal margined with black; a few obscure transverse bands on the caudal.

Melbourne (Castelnau).

482. *Gobius maculatus*, Casteln.

Researches on the Fishes of Australia, p. 20.

D. 6/12. A. 9. L. lat. 29.

Height of body about five times in the total length; head four times; eye less than four times in the length of the head; no canines; scales very large and strongly ciliated. General colour light grey, with four longitudinal lines of well defined, oblong, black spots, between which are numerous small white dots, placed irregularly; belly white; all the fins dark with transverse lines of white points; ventrals black.

Queensland (Castelnau).

483. *Gobius buccatus*, Cuv. & Val.

Gunth., Cat. Fishes III., p. 14.

D. 6. 1/11. A. 1/10.

Cheeks swollen. Head as broad as long and one-third broader than high and one-fourth of the total length. Mouth nearly vertical. The diameter of the eye is one-sixth of the length of the head, and one-half of the width of the interorbital space. None of the pectoral rays silk-like. Scales moderate. Entirely reddish-brown, fins minutely spotted.

Sydney (Macl. Mus.)

484. *Gobius gibbosus*, *n. sp.*

D. 6/10. A. 10. L. lat. 25.

Head higher than its length, broad and rounded in front, with the eyes small and two diameters apart; the snout is very round, the mouth in the centre, small and very oblique, teeth small and very acute with small canines in the lower jaw. Height of body about one-fourth of total length; tail rounded. Scales large, slightly ciliated, the top of the head and nape as far as the first dorsal entirely naked. Colour uniform reddish-yellow, fins a little obscure.

Endeavour River (Macl.¹/₂ Mus.)

In the blunt rounded head this species has much the appearance of a *Gobiodon*. My specimens are from one to two inches in length.

485. *Gobius LATERALIS*, *n. sp.*

D. 6/9. A. 9. L. lat. 30.

Height of body one-seventh of the total length. Head somewhat flat; the eyes oval, close together and looking upwards; mouth slightly oblique; teeth minute; no canines. Tail pointed, wedge-shaped; the posterior rays of the soft dorsal and anal fins somewhat elongate, reaching to the caudal. Colour reddish-yellow, indistinctly dotted and mottled with brown, on the head there are also some lighter markings, the colour not showing in spirit specimens, along the middle of each side of the body there are five large, reddish-brown spots, the last on the root of the tail; the dorsal fins are both speckled with brown, the first spine of the first dorsal with a black blotch; the caudal has on its upper half about eight transverse series of brownish dots; the anal is margined with black; the ventrals are slightly blackish towards the apex, and the pectorals are large, yellow and without spot.

King George's Sound (Macl. Mus.)

486. *Gobius FLAVIDUS*, *n. sp.*

D. 6/11. A. 9. L. lat. 40.

Height of body about one-sixth of the total length. Head rather flat above, with the eyes near the top and close together; snout, about equal in length to the diameter of the eye, rounded in front and with thick lips; teeth very small. Scales rather small; the dorsal fins about half the height of the body, the membranes extending to the extremity of the spines and rays; tail rounded; pectoral fins large, the upper rays silk-like. Colour pale reddish-yellow, sometimes mottled with a deeper shade of red; fins white, but not very transparent, the two dorsals and

the caudal faintly spotted with brown, the spots most distinct on the first ray of each.

Port Jackson. Specimens about one and a-half inches long.

487. *Gobius scabriceps*, n. sp.

D. 6/10. A. 10. L. lat. 24.

Height of body one-fourth of the total length. Head higher than long, very convex above and very round in front; the space between the eyes equal to more than twice their diameter, mouth small, very oblique; chin very convex. Scales large, none on the head, nape, and along the back at base of dorsal fins, the head entirely covered with cutaneous short thread-like filaments, thickest and longest on the under part of the head; the membranes of the fins thick and opaque; the tail rounded; pectorals large; ventrals forming a very round disk. Colour uniform reddish-brown.

Endeavour River (Macl. Mus.). One and a-half inches long.

A very remarkable form, approaching nearest to *G. gibbosus*, mihi.

488. *Gobius nigroocellatus*, Gunth.

Journ. Mus. Godeff., Heft. II., p. 101.

D. 6. 1/10. A. 1/9. L. lat. 27.

Eight longitudinal series of scales between the second dorsal fin and the anal. The scales behind the head are a little smaller than those of the body. The height of the body is one-fifth of the entire length, without the caudal fin, the length of the head one-fourth. The eyes close together, of moderate size. Mouth small, horizontal with overlapping upper jaw. Strong curved canine teeth on the side of the under jaw. Snout shorter than the eye. The upper rays of the pectoral fin silk-like; the fin itself as long as the head. All the fin-rays flexible, those of the second dorsal about as high as the body beneath them. Caudal fin of moderate length and rounded. The ventral fins reach

almost to the anal. Greyish-brown (in spirits) each scale with a paler centre. Two rows of deep black, light-margined ocelli along the side of the body—the upper row runs on the third longitudinal row of scales; the under along the fifth. The vertical fins are tipped with brown. A short, black, streak at the base of the pectorals. Ventrals black in the middle, yellow on the sides.

Bowen, Queensland. Length two and a-half inches.

489. *Gobius sauroides*, Casteln.

Proc. Linn. Soc. N.S. Wales, Vol. III., p. 48.

Norman River.

490. *Gobius microphthalmus*, Gunth.

Gunth., Cat. Fishes III., p. 44, and note, p. 550.

D. 6/8. A. 7. L. lat. 27.

Ten series of scales between the origin of the posterior dorsal and anal fins. Head and body very compressed, the height of the body three times and three-fifths in the total length, the length of the head four times. The depth of the head above the præoperculum is not much less than its length, and much more than its width. Eye rather small, its diameter being one-seventh of the length of the head, equal to width of the interorbital space, and less than the extent of the snout. Cleft of mouth slightly oblique, wide, reaching to the vertical from the posterior margin of the eye, with the jaws equal in front; a pair of small canine teeth in the front of each jaw. Scales minutely striated and ciliated. The two anterior dorsal spines are the longest, somewhat produced, but much lower than the body. Caudal fin rounded; the pectoral has no silk-like rays, and reaches to the anal; ventral reaches to the vent, with the basal membrane well developed. Brownish (in spirits) with irregular, narrow, oblique, darker streaks; the anterior dorsal fin with two black, longitudinal

stripes, the lower of which is dilated into a blackish blotch posteriorly; the second dorsal with three rather irregular, serrated blackish bands, with white spots between them; caudal dotted with brown; anal blackish.

Australia (Gunther). Under two inches in length.

491. *Gobius nuchifasciatus*, Gunth.

Journal Mus. Godeff., Band I., Heft. 4, p. 90,

D. 6/12. A. 9. L. lat. 25.

Nine longitudinal rows of scales between the second dorsal fin and the anal. The length of the head is rather more than the height of the body and is two-sevenths of the total length without the caudal fin. The head is longer than high, and higher than broad. Snout much shorter than the eye, which is of moderate size. Cleft of the mouth oblique, reaching to beneath the middle of the orbit, with a somewhat projecting under jaw. Eyes close together. Two or three canine teeth on each side of the under jaw. The head, and nape nearly to the dorsal fin without scales. The ventral fins cover the anal. The dorsal fins are scarcely so high as the body beneath them, but the second and third rays are prolonged into very fine filaments. Caudal fin rounded. Body uniformly greenish, three grey, dark-bordered, oblique bands over the nape, curved forwards on the side of the head. The foremost under the eyes extends to the posterior end of the maxillary bone. The second dorsal, the caudal, and the anal fins finely spotted.

Bowen (Queensland). Length one and a-quarter inch.

B. *Scales small, L. lat. 50 or more.*

492. *Gobius papuensis*, Cuv. & Val.

Gunth., Cat. Fishes III., p. 49.

D. 6. 1/12. A. 1/13. L. lat. 75-80.

Scales small anteriorly, becoming larger on the tail; the height of the body is one-seventh of the length (without caudal), the length of the head one-fourth. The head is one-third longer than high, and one third higher than broad; the eyes are very close together, their diameter being one-fifth of the length of the head. Mouth oblique, the maxillary extending to below the middle of the eye, teeth of the outer series enlarged. The length of the caudal fin is one-fourth of the total, and is elongate and pointed. Greyish brown, clouded with darker, a brown spot at the root of the caudal fin, another at the base of the pectoral; dorsals with five reticulated lines.

Australia (Gunther).

493. *Gobius crassilabris*, Gunth.

Gunth., Cat. Fishes III., p. 63.—Ann. and Mag. Nat. Hist. 1867, XX., p. 61.

D. 6/11. A. 11. L. lat. 60.

Fifteen series of scales between the second dorsal and anal fins. Height of body six times and a-half in total length; length of head three times and a-half. Head flat, depressed, as broad as high; snout elongate; cleft of mouth horizontal, upper jaw longest, lips thick; teeth small; the maxillary reaches to or slightly beyond the vertical from the anterior margin of the eye. The width of the interorbital space equals the diameter of the eye, which is one-sixth of the length of the head. Head naked, scales of body smaller anteriorly. The dorsal fins lower than the body, caudal rounded, ventrals short, with a broad basal membrane. Yellowish or brownish, sides of head and body with irregular black spots, forming a band from the pectorals to the tail, at the root of which there is a round, deep, black spot; a black streak superiorly on the base of the pectoral. Dorsal, caudal, and pectoral fins dotted with brown, the dots being arranged in

longitudinal series in the first, and in transverse ones on the two last; ventral and anal blackish.

Australia (Gunther). Length five to six inches.

494. *Gobius BYNOENSIS*, Richards.

Voy. Erebus and Terror, p. 1, pl. 1, f. 1-2.—Gunth., Cat. Fishes III., p. 70.

D. 6. 1/16. A. 1/15. L. lat. 65.

Height of body five times and a-half in total length, length of head five times. Head higher than broad; snout obtuse; mouth slightly oblique, teeth of outer series enlarged; lower jaw with a pair of canines. Width of interorbital space half the diameter of the orbit, which is one-fifth of the length of the head. The first dorsal fin is higher than the second and lower than the body, its distance from the eye is more than that of the snout from the præoperculum. Caudal fin rounded; none of the pectoral rays silk-like. Greenish: back with four or five brownish-violet cross-bands; on each side of the head two brownish-violet, blue-edged longitudinal bands, the lower of which terminates in a dark spot on the upper part of the base of the pectoral fin; neck with two series of brown, blue-edged ocelli; dorsal fins dotted with white; caudal with a brown spot on the upper part of its base; anal with violet margin; the other fins rose-coloured.

Western Australia. Port Essington.

495. *Gobius VOIGTII*, Bleek.

Gunth., Cat. Fishes III., p. 72.

D. 6. 1/10. A. 1/10. L. lat. 80.

Height of body seven times in the total length; length of head four times and four-fifths; the head higher than broad; the snout convex, shorter than the eyes, which are very close together, and one-fourth the length of the head. Mouth oblique, jaws nearly equal, teeth of outer series enlarged, a pair of lateral canine teeth

in the lower jaw. Head and neck naked. The first dorsal fin is much higher, the second lower than the body; the length of the caudal is four times and a-quarter in the total. Greenish: with eight brownish cross-bands; head with round, blue, darker-edged spots; the first dorsal spine broadly annulated with brown, a black spot between the fourth and fifth spines; the second dorsal fin blue spotted, and with a blue longitudinal line near the margin; caudal orange-coloured, superiorly and inferiorly violet, superiorly with two oblique blue streaks; the other fins violet.

Port Essington. Cape York.

496. *Gobius filamentosus*, Casteln.

Casteln., Researches on the Fishes of Australia, p. 19.

D. 6/11. A. 11. L. lat. 55.

Height of body seven times and one-third in the total length, the head four times and two-thirds; the diameter of the eye is one-fifth of the length of the head, and twice the width of the interorbital space; the snout is longer than the eye; the cleft of the mouth oblique; the maxillary reaches beyond the vertical from the anterior margin of the eye; scales of body much larger towards the posterior portion. The last spine of the first dorsal fin terminates in short filaments; the two first rays of the second dorsal are somewhat prolonged, and the posterior rays are prolonged beyond the base of the caudal. The caudal is pointed, the middle rays elongate; the pectorals are large, the rays filamentary. Brownish-black (in spirits); the head bluish, the fins black; the dorsals, caudal, and anal bordered with yellow; the base of the pectorals and ventrals white.

South Australia.

497. *Gobius microlepidotus*, Casteln.

Casteln., Researches on the Fishes of Australia, p. 20.

Anterior dorsal fin with six spines; scales very minute, about 85 in a lateral line; height of body four times and a-third in the

length (without caudal); the length of the head four times; head rounded in front; space between the eyes equal to their diameter, which is about one fourth of the length of the head; four canine teeth; caudal fin elongate, pointed. Colour, obscure brownish-olive, rather silvery beneath; an obscure longitudinal band extends from below the eyes to the base of the pectoral fins, sometimes extending along the sides; a black blotch is visible on the base of the caudal fin.

Cape York, (Castelnau). Three inches long.

498. *Gobius mucosus*, Gunth.

Proc. Zool. Soc., London, 1871, p. 663, pl. 63, fig. A.

D. 6. 1/11. A. 10.

Scales very small and hidden below a thick mucous covering, which envelops all parts, and forms on the snout and sides of the head transverse and longitudinal ridges. Height of body one-fifth of the length (without caudal), length of head two-sevenths. Head rather depressed, its depth being one half its length. Snout moderately produced; the posterior margin of the orbit occupying nearly the middle of the head. The diameter of the eye equals the width of the interorbital space, and is one-fifth of the length of the head. Mouth small, subvertical, the angle at a considerable distance from the eye. Teeth very small, in bands, without canines. Dorsal and anal fins not elevated; caudal pointed, longer than the head; the pectorals reach the origin of the soft dorsal; the ventrals do not nearly reach the vent. Body reticulated with blackish; all the fins except the ventrals with blackish spots.

South Australia.

499. *Gobius platystoma*, Gunth.

Proc. Zool. Soc., London, 1871, p. 664, pl. 63, fig. B.

D. 6/10. A. 9. L. lat. 60.

Twenty series of scales between the origin of the second dorsal fin and the anal. Head and anterior part of the body broad and rather depressed. The broad, rounded snout projects somewhat over the large mouth. The height of the body is one-fifth of the length (without caudal) the length of the head nearly one-fourth. Eye small, only half the width of the interorbital space; the maxillary extends to below the hind margin of the orbit. No canine teeth; head entirely naked; dorsal and anal fins low; caudal obtusely rounded; ventral short, terminating a great distance from the vent, its basal membrane well developed; the free portion of the tail scarcely longer than deep. Brownish, with some indistinct darker spots; the spinous dorsal fin with a dark spot behind.

Port Mackay.

500. *Gobius cristatus*, *n. sp.*

D. 6/12. A. 12.

Height of body seven times in the total length, length of head four times and a-half. Head slightly depressed, body compressed; eyes nearly their diameter apart, and about the same distance from the snout; mouth oblique; teeth rather strong and numerous, strong canines in the lower jaw; cheeks swollen; a long skinny flap or crest along the nape from the eyes to the dorsal fin; scales minute. The second, third, fourth, and fifth rays of the first dorsal fin much prolonged and filamentose; caudal large, acutely rounded. Colour (in spirits) brownish-black, with indistinct traces of spots and other darker markings; the fins are not quite so dark; the first rays of both dorsals with a few black spots, the pectorals entirely spotted, the ventrals black and very short.

Port Jackson. Abundant, four inches long.

Genus *Apocryptes*, Cuv. & Val.

Body elongate, covered with small scales which become larger posterisrly; gill-openings of moderate width. Teeth in a single

series, conical and fixed, with canines in both jaws, or at least in the lower. The spinous portion of the dorsal fin separate from or continuous with the soft. Ventral fins united, not adherent to the belly. Pseudobranchiæ rudimentary. Vertebrae 12/15.

East Indian and Australian Seas and Rivers.

501. *APOCRYPTES LINEATUS*, All. & MacI.

Proc. Linn. Soc., N. S. Wales, Vol. I., p. 332, pl. 12, fig. 3.

Cape Grenville. Palm Islands. (Chevert Exp.)

502. *APOCRYPTES BIVITTATUS*, MacI.

Proc. Linn. Soc. N. S. Wales, Vol. II., p. 357, pl. 9, fig. 5.

Port Darwin.

503. *APOCRYPTES MACROPHthalmus*, Casteln.

Proc. Zool. Soc. Victoria, Vol. II., p. 87.

D. 5/27. A. 25.

Height of body eight times and a-quarter in the total length, length of head five times; eye four and a-half times in the length of the head; snout very convex, and a little longer than the diameter of the eye. Eyes prominent, on the upper part of the head; head broad behind; upper jaw longest; cleft of mouth nearly horizontal and extending to beneath the posterior part of the eye. Teeth strong, canine-like; some short tentaculæ on the lower jaw; scales very minute, embedded in the skin. Body narrow, compressed, not more than half the width of the head, and tapering to the tail. Caudal fin lanceolate and united by a membrane to dorsal and anal; the last rays of the first, and the first two of the second dorsal, somewhat filamentose. Colour a light silvery grey, with the upper parts darker.

Port Darwin.

Genus *Gobiosoma*, Girard.

Scales none. Body elongate, cylindrical; head not compressed; teeth small, villiform or cardiform. Two dorsal fins, the posterior of greater extent. Anal similar to the soft dorsal; ventrals united to a disk, which is not attached to the belly. Gill opening vertical, of moderate width, the gill membrane being united to the isthmus.

Chiefly Atlantic Coasts of America.

504. *Gobiosoma guttulatum*, MacL.

Proc. Linn. Soc. N. S. Wales, Vol. II., p. 357, pl. 9, fig. 6.
Port Darwin.

Genus *Gobiodon*, Bleek.

Body oblong, more or less compressed, naked; head large, elevated; gill-openings of moderate width; generally two canine teeth near the symphysis of the lower jaw. Two dorsal fins; ventral fins united.

Coral Seas.

505. *Gobiodon verticalis*, All. & MacL.

Proc. Linn. Soc. N. S. Wales, Vol. I., p. 333, pl. 12, fig. 4.
Darnley Island (Chevert Exp.), in coral.

506. *Gobiodon ceramensis*, Bleek.

Gunth., Cat. Fishes III., p. 88.—Journ. Godeff., Heft. XIII., p. 182, pl. 109, f. D.

D. 6. 1/10. A. 1/9.

Height of body three times and a-half in the total length, the length of the head four times and a-half. Head compressed, as high as long; snout obtuse, convex, shorter than the eye. Lower jaw with small canine teeth. Dorsal fins much lower than the

body; caudal rounded. Entirely black or brown, with black fins.

Darnley Island (Chevert Exp.)

507. *Gobiodon citrinus*, Rüpp.

Gunth., Cat. Fishes III., p. 87.—Journ. Mus. Godeff, Heft 13.,
pl. 109, fig. E.

D. 6. $1/10$. A. $1/8$.

Body short and compressed. Canine teeth none. Yellow; a blue black-edged streak along the base of the dorsal and anal fins; four transverse streaks of the same colour—two descending from the eye, the third from the vertex to the opercles, and the fourth in front of the pectoral fins.

Endeavour River (Macl. Mus.)

508. *Gobiodon quinquestrigatus*, Cuv. & Val.

Gunth., Cat. Fishes III., p. 87.—Ann. and Mag. Nat. Hist. 1867,
XX., p. 61.

D. 6. $1/10$. A. $1/9$.

Body short, compressed, its height being one-third of the total length; head as high as long, with the anterior profile parabolic. Ventrals short. Canine teeth. Yellow: head and thoracic region with five vermilion transverse bands; body with seven longitudinal series of spots of the same colour.

Cape York, (Gunther).

509. *Gobiodon unicolor*, Castelnau.

Elleryia unicolor, Casteln., Proc. Zool. Soc., Viet., Vol. II., p. 95.

D. 6. $1/10$. A. 10.

Height one-third of the total length. Head very convex and compressed, with very minute bony prominences between the eyes. Mouth very small and oblique; eye very small. Colour

uniform pale yellowish-red, the fins sometimes very slightly darker; a broad purplish spot at the root of the pectorals.

Endeavour River. Cape Sidmouth.

Genus PERIOPHTHALMUS, Bl.

Body subcylindrical, covered with ctenoid scales of moderate size; head oblong with the cleft of the mouth nearly horizontal and with the upper jaw somewhat longer. Eyes very close together, very prominent, with the outer eyelid very well developed. Teeth conical, in both jaws vertical. Two dorsal fins; caudal with the lower margin obliquely truncated. Base of pectoral fin large, muscular and scaly. Ventrals more or less united. Gill-openings rather narrow; branchiostegals five; air-bladder absent; pseudobranchiæ rudimentary; a slit behind the fourth gill.

Low coasts and river mouths of tropical seas.

510. PERIOPHTHALMUS KOELREUTERI, Bl.

Gunth., Cat. Fishes III., p. 97.

B. 5. D. 10-16/12, A. 11. L. lat. 90-100. Vert. 11/15.

The second dorsal fin with a black, generally white-edged, longitudinal band on its upper half. The first dorsal not, or sometimes in young individuals, only slightly produced. About twenty teeth in each jaw. Ventrals separated from each other in adult and immature specimens.

Port Darwin. Katow. Torres Straits.

511. PERIOPHTHALMUS AUSTRALIS, Casteln.

Researches on the Fishes of Australia, p. 22.—Proc. Linn. Soc. N. S. Wales, Vol. III., p. 48.

“*The Climbing Fish*” of the Northern Queensland Settlers.

D. 3/12. A. 12. L, lat. about 50.

Height of body about five times in the length; head three three and two-thirds; eyes very prominent, nearly united; anterior profile of head vertical and bilobed; the superior portion of the upper prolonged into a free angular appendage, the lower portion very large and covering entirely the mouth; teeth composed of a series of canines apart from one another; teeth on the vomer and palate. Head scaly; the first dorsal fin narrow, high and filamentose; the distance between the two dorsals great; the ventrals are separate for more than half their length. General colour (in spirits) of a dark slaty-brown, with the lower parts brilliant yellow; the fins are fringed with yellow, and the anal is entirely of that colour.

Cape York. Port Darwin. Northern Coasts of Queensland. Attaining a length of 12 inches.

Genus ELEOTRIS, Gronov.

Body subcylindrical, scaly; head oblong; eyes of moderate size, lateral, not prominent. Teeth small. Two dorsal fins. Pectoral fins not very muscular at the base; ventrals not united, but near one another. Gill-openings of moderate width; five or six branchiostegals; air-bladder large; pseudobranchiæ; a slit behind the fourth gill. Anal papilla distinct.

Fresh-waters of all warm latitudes.

512. ELEOTRIS OPHIOCEPHALUS, Cuv. & Val.

Gunth., Cat. Fishes III., p. 107.—Journ. Mus. Godeff., Heft. XIII., p. 185, pl. 112, B.

D. 6. 1/8. A. 1/7. L. lat. 34-36. Vert. 12/14.

Twelve series of scales between the origin of the second dorsal fin and the anal. Head entirely scaly, excepting the front part of the snout; scales on the upper surface of head rather larger than those on the body. Height of body one-sixth of total length, the length of the head one-fourth. Head obtuse, flat, depressed.

The diameter of the eye is one-fifth of the length of the head, two-thirds of that of the snout; and four-ninths of the width of the interorbital space. The cleft of the mouth extends to below the middle of the eye. Teeth in villiform bands. Brownish, the scales with a rather darker centre; irregular series of pearl-coloured spots along the lower part of the sides; vertical fins with whitish margins, the second dorsal and caudal with light spots.

Rockingham Bay.

513. *ELEOTRIS APOROS*, Bleek.

Gunth., Cat. Fishes III., p. 109.—Ann. and Mag. Nat. Hist., 1867, XX., p. 62.

Eleotris macrolepidota, Bl., Gunth., Cat. Fishes III., 111.—Journ. Mus. Godeff., V., pl. 112.

D. 6. 1/8. A. 1/8-9. L. lat. 32-38. Vert. 12/13.

Ten or eleven series of scales behind the origin of the second dorsal fin and the anal. Head entirely scaly, excepting the front of the snout; scales on the upper part rather larger than those on the body. Scales minutely ciliated. Height of body is from four to five times in the total length, the length of the head four times. Head obtuse, flat, depressed. The eye occupies the third-seventh of the length of the head, and is one-third of the width of the interorbital space, (in adult specimens). The maxillary extends to the vertical from the anterior margin of the eye. Brownish-olive (in spirits), with one or two rows of darker spots along the side; three oblique streaks from the eye to the opercles, the upper leaving a spot on the base of the pectoral. Fins blackish, the second dorsal and anal with white margin.

Port Denison. Cape York (Gunther).

514. *ELEOTRIS DARWINIENSIS*, Macl.

Agonostoma darwiniense, Macl. Proc. Linn. Soc. N. S. Wales, Vol. II., p. 360, pl. 9, fig. 8.

Port Darwin.

515. *ELEOTRIS MOGURNDA*, Richards.

Voy. Erebus and Terror, Fishes, p. 4, pl. 2, figs. 1—2.—Gunth.,
Cat. Fishes III., p. 111.

D. 8. $1/12$ -13. A. $1/13$. L. lat. 48.

Fifteen series of scales between the origin of the second dorsal fin and the anal. Scales of head and body equal, minutely ciliated. Height of body five times in the total length, the length of the head three times and three-quarters. The horizontal diameter of the eye is one-sixth of the length of the head, and one-half the width of the interorbital space. Snout moderate, rather depressed, with the lower jaw prominent; the maxillary extends nearly to the vertical from the anterior margin of the eye. Teeth villiform in broad bands. Pale brown (in spirits) with a series of dark-brown spots along the middle of the side; three oblique, narrow brown stripes from the eye to the gill-opening, the upper one reaching on the base of the pectoral fin.

Port Essington.

516. *ELEOTRIS AUSTRALIS*, Krefft.

Proc. Zool. Soc., London, 1864, p. 183.

D. 7. $1/8$. A. $1/8$. L. lat. 32.

Eight series of scales between the origin of the second dorsal fin and the anal. Head scaly as far as the snout, obtuse; lower jaw prominent; teeth in villiform bands. The height of the body is four times and a-half in the total length, the length of the head four times and a-quarter; the horizontal diameter of the eye one-half the width of the interorbital space. Colour yellowish brown, covered with minute, black spots, which form five or six longitudinal lines upon the sides; base of pectoral fins with a narrow, bright yellow band; all the rays of the caudal spotted with black; second dorsal with three or four narrow, sometimes indistinct bands. Anal papilla as long as the horizontal diameter of the eye, and nearly as broad. Length five inches.

Rivers and Creeks of East Coast of New South Wales.

517. *ELEOTRIS COXII*, Krefft.

Proc. Zool. Soc., London, 1864, p. 183.

D. 7. $1/9$. A. $1/9$. L. lat. 36-38.

Twelve series of scales between the origin of the second dorsal fin and the anal. Head scaly, snout obtuse, with the lower jaw prominent. The height of the body is five times and a-quarter in the total length; the length of the head more than four times; the horizontal diameter of the eye is one-fourth of the length of the head, and equal to the width of the interorbital space. Bright yellow: upper part and sides finely punctured with black, forming a broad, sometimes indistinct streak upon the sides; dorsals and pectorals bright yellow at the base, the first punctured with black: the belly whitish. Teeth viliform, in broad bands. Anal papilla large, somewhat longer than broad. Length five and a-quarter inches.

Ropes' Creek, Mulgoa, upper Hawkesbury River.

518. *ELEOTRIS GRANDICEPS*, Krefft.

Proc. Linn. Soc., London, 1864, p. 183.

D. 7. $1/9$. A. $1/9$. L. lat. 38-40.

Twelve series of scales between the origin of the second dorsal fin and the anal. Head very large, broad, depressed, without scales; lower jaw prominent; teeth villiform. The height of the body is five times in the total length, the length of the head three times and a half. The diameter of the eye is one-fifth of the length of the head, and nearly half the width of the interorbital space; the pectorals reach to the origin of the anal fin. General coloration yellowish, punctured with black, in particular on the upper part and sides; snout blackish; lower jaw sometimes punctured with black also; beneath whitish. Anal papilla very small. Length three and a-half inches.

Upper Hawkesbury. Eastern Creek, Bronte.

519. *ELEOTRIS COMPRESSUS*, Krefft.

Proc. Zool. Soc., London 1864, p. 184.

D. $1\frac{9}{10}$ A. $1\frac{1}{10}$. L. lat. 28-30.

Eight series of scales between the origin of the second dorsal fin and the anal. Body cyprinoid, compressed; the height three times and three-quarters in the total length, the length of the head four times; the horizontal diameter of the eye is one-fourth of the length of the head, and is contained once and a-half in the width of the interorbital space; the snout is short, lower jaw longest; mouth rather small; head scaly. Coloration reddish-brown, with five or six indistinct cross-bands formed of close-dotted black spots with which the scales are covered. The second dorsal and anal fins are rather long, and more or less marked with black at the base and top, the hinder part of the second dorsal is also speckled with white. Anal papilla of moderate size and forked.

Clarence River. Port Denison. Length three and a-half inches.

520. *ELEOTRIS NUDICEPS*, Casteln.

Proc. Zool. Soc., Victoria, Vol. I., p. 126.

D. 7. $1\frac{1}{10}$. A. $1\frac{1}{10}$. L. lat. 47.

Height of body six times in the total length, head three and one-fourth times; eye six times and one third in the length of the head; lower jaw considerably longer than the upper; head very large, very broad, being at its widest part one-half its length. Mouth very broad; the maxillary extends to below the centre of the eye, the eyes about one third of the length of the head apart. The teeth are numerous and cardiform, those of the lower jaw larger; teeth on the vomer and palatines and back part of the tongue. Head naked, but rough and with longitudinal ridges. Scales on anterior part of body very small. The last ray of the dorsal fin longer than the others; caudal fin long and rounded; pectorals two-thirds as long as the head and of eighteen rays.

Colour light olive-green, whitish beneath; head nearly black; the first dorsal fin has two longitudinal bands of red spots, the second has three or four of the same; the caudal has numerous transverse series of small red spots; ventrals and anal white.

Yarra River.

521. *ELEOTRIS MODESTA*, Casteln.

Proc. Zool. Soc., Victoria, Vol. II., p. 85.

D. 6. $1/8$. A. $1/9$. L. lat. 31. L. transv. 11.

Elongate; height of body four times and four-fifths in the total length; length of head three times and a-half; eye three times in the length of the head. The snout is shorter than the diameter of the eye, rather depressed, but not very broad; the cleft of the mouth is oblique, and does not reach to the vertical from the anterior edge of the orbit; head entirely scaly; scales of body large, striated and finely serrated. The first dorsal fin somewhat produced into filaments. Colour light yellow, with the upper parts rather brown; a very small and obscure spot at the upper angle of the base of the pectorals, and a dark faint line along the body to the tail. The dorsal fins are marked with irregular, oblique, transverse spots, and the extremity of the second is black; the caudal is transversely speckled with brown.

Port Darwin (Castelnau). Under two inches in length.

522. *ELEOTRIS CASTELNAUI*, Macl.

**Eleotris obscura*, Casteln., Proc. Zool. Soc., Vict., Vol. II., p. 134.

D. $9\frac{2}{9}$. A. 8. L. lat. 37-38. L. transv. 11.

Head large and broad, its length being four times in the total length; the space between the eyes is four times and two-thirds in the length of the head; the widest diameter of the orbit is one-sixth of the total length; head naked, some elevated lines on

*Name appropriated before by Schlegel, for a Japanese species.

the præoperculum. The lower jaw is longer than the upper; the teeth are small and disposed in numerous rows; the throat is much inflated; the cleft of the mouth is rather oblique; the scales are striated and ciliated. The second dorsal and anal fins are rather high, the caudal is elongate, rounded, and five times in the total length. Colour dark brown (in spirits). Length three inches.

Swan River (Castelnau).

523. *ELEOTRIS PALLIDA*, Casteln.

Researches on the Fishes of Australia, p. 24.

D. 7/ . A. L. lat. 32.

Height of body three times and three-fourths in the total length (without caudal); length of head three times. Lower jaw much longer than upper; eyes small; scales large. Colour olive-yellow, a very faint blotch at the root of the tail; head with three faint, obscure, oblique bands from the eye to the opercle; fins transparent, caudal with transverse lines of black dots.

Cape York (Castelnau). Length three and a-half inches.

524. *ELEOTRIS SIMPLEX*, Casteln.

Proc. Linn. Soc. N.S. Wales, Vol. III., p. 49.

Norman River.

525. *ELEOTRIS PLANICEPS*, Casteln.

Proc. Linn. Soc. N.S. Wales, Vol. III., p. 49.

Norman River.

526. *ELEOTRIS SULCATICOLLIS*, Casteln.

Proc. Linn. Soc. N.S. Wales, Vol. III., p. 142.

Brisbane River.

527. *ELEOTRIS ADSPERSA*, Casteln.

Proc. Linn. Soc. N. S. Wales, Vol. III, p. 142.

Fitzroy River.

528. *ELEOTRIS ONYCEPHALA*, Schleg.Gunth., Cat. Fishes III., p. 115.—Kner., Voy. Nov., Fishes,
p. 185.D. 6. $1/8$. A. $1/8$. L. lat. 48.

Præoperculum with a spine directed forwards. Thirteen series of scales between the origin of the second dorsal fin and the anal. The scales on the head are small and extend on to the snout; those on the cheeks are minute. Scales minutely ciliated. The height of the body is one-sixth of the total length, the length of the head one-fourth. The eye occupies the third eighth of the length of the head, and is one-third of the width of the inter-orbital space. Snout depressed, of moderate length, with the lower jaw prominent; the maxillary does not quite reach the vertical from the centre of the eye; teeth villiform forming bands. Brownish, with scattered darker dots and lighter stripes along the series of scales; the lower parts minutely dotted with brown and the lower part of the head with round white spots. Fins with serrated brown bands. Length four to six inches.

Sydney (Kner).

529. *ELEOTRIS ELEVATA*, Maccl.**Eleotris compressus*, Maccl., Proc. Linn. Soc. N. S. Wales, Vol.
II., p. 358, pl. 9, fig. 7.

Port Darwin.

530. *ELEOTRIS MASTERSII*, *n. sp.*D. 7. $1/8$. A. 9. L. lat. 38.

*Name previously used by Krefft.

Ten series of scales between the origin of the second dorsal fin and the anal. Height of body one-seventh of the total length; the length of the head one-fourth. Head flat; snout longer than the eye; lips thick; lower jaw projecting; mouth oblique, not reaching to the vertical from the anterior margin of the eye; distance between the eyes more than their diameter. Scales rather large, ciliated and some striated, extending on the top of the head as far as the eyes; fins large, caudal rounded; anal papilla broad and flat. Colour in spirits, yellowish-brown, with round brown spots on the cheeks and upper part of the sides of the body. Fins yellow: the dorsals spotted with brown, in about three longitudinal series, the caudal minutely spotted with brown on the rays in about eight transverse series.

Ropes' Creek (Macl. Mus.)

531. *ELEOTRIS LINEATA*, Casteln.

Researches on the Fishes of Australia, p. 24.

D. 7/14. A. 14. L. lat. over 70.

Head three times and a-quarter in the length without the caudal fin. Body elongate; caudal fin pointed; the fourth ray of the first dorsal elongate, the third slightly so. Colour a light lilac-grey; a longitudinal pink stripe, narrowly bordered with black, runs along the middle of the body, three similar stripes run on the head and opercles below the eye; the first dorsal fin is also spotted in the same way, and the elongated ray is black; an obscure spot at the base of the caudal.

Cape York. Darnley Island (Chevert Exp.)

532. *ELEOTRIS FUSCA*, Bl.

Gunth., Cat. Fishes III., p. 125.—Ann. and Mag. Nat. Hist., 1867, XX., p. 62.

D. 6. 1/8. A. 1/8. L. lat. 60-65. Vert. 11/14.

Præoperculum with a spine directed downwards. Sixteen series of scales between the origin of the second dorsal fin and the anal. Scales on top of the head small, extending to the space between the eyes; those on the cheeks minute. Scales ciliated. Height of body one-fifth of the length, length of head one-fourth. The eye occupies the third seventh of the length of the head and its vertical diameter is one-third of the width of the interorbital space. Snout depressed, short, with the lower jaw prominent, the maxillary reaches to the vertical from the centre of the eye. Teeth villiform forming bands, those of the outer series enlarged of rather unequal size. Blackish-brown: the lateral scales sometimes with black centre; the spots forming either more or less regular longitudinal series, or a band along the middle of the side; dorsal and caudal fins with distinct, anal and pectoral with rather indistinct, series of brown dots.

Australia (Gunth.)

533. *ELEOTRIS MURALIS*, Cuv. & Val.

Gunth., Cat. Fishes III., p. 130.—Ann. and Mag. Nat. Hist., 1867, XX., p. 62.

B. 5. D. 6. $1/12$. A. $1/12$. L. lat. 80.

The second, third, and fourth dorsal spines produced into filaments. The height of the body is one-eighth or one-ninth of the total length, the width of the interorbital space is one-half of the diameter of the eye; teeth in single series of unequal size. Brownish: head and body with red longitudinal bands; back with some irregular cross-bands. Fins yellow: the first dorsal with a black spot behind the top of the third spine; dorsal and anal fins with red longitudinal bands, caudal with red and brown spots.

Cape York. Darnley Island. Endeavour River.

534. *ELEOTRIS TÆNIURA*, *n. sp.*

D. 6. $1/11$. A. 11.

Scales very small. Height of body one-sixth of the length, length of head one-fifth. Snout convex, longer than the eye, which is equal to the width of the interorbital space. Mouth horizontal, reaching to below the middle of the eye; teeth cardiform. The last ray of the second dorsal fin extends to the caudal, and the central rays of the caudal are elongated very considerably. Colour in spirit, brownish-yellow, with three bands as in *muralis*, on the sides of the head, and five or six large transversely oblong, brownish spots along the middle of the side; there are traces also of ocellated spots on the opercles. Fins immaculate, yellow.

Low Island, Barrier Reef.

535. *ELEOTRIS ELONGATA*, All. & Macd.

Proc. Linn. Soc. N. S. Wales, Vol. I., p. 334, pl. 13, fig. 1.

Darnley Island.

Genus *ARISTEUS*, Castelnau.

Proc. Linn. Soc., N. S. Wales, Vol. III., p. 141.

Freshwaters of Australia.

536. *ARISTEUS FITZROYENSIS*, Castelnau.

Proc. Linn. Soc. N. S. Wales, Vol. III., p. 141.

Fitzroy River.

537. *ARISTEUS FLUVIATILIS*, Casteln.

Proc. Linn. Soc. N.S. Wales, Vol. III., p. 141.

Murrumbidgee River. Ropes' Creek.

538. *ARISTEUS RUFESCENS*, *n. sp.*

D. $1\frac{1}{5}$ $1\frac{1}{9}$. A. $1\frac{1}{20}$. L. lat. 30.

More elongate than the two foregoing species, the height of the body being less than a-third of the length (without the

caudal); space between the eyes very flat, and smooth, about the width of two diameters of the eye; mouth small, the intermaxillary roundly enlarged in front, making the cleft of the mouth horizontal in the middle and oblique on each side; præoperculum very short with a straight posterior edge; teeth numerous on the edge of the maxillary and mandibular bones and on the vomer; the spine of both dorsal fins strong, as also of the anal; the rays of the first dorsal filamentary, tail slightly emarginate; ventrals short, near the anus; anal papilla none or very small. Colour reddish chestnut, with a very thin, sometimes inconspicuous black line along each side of the body. Fins immaculate.

Rivers of Northern Queensland.

539. *ARISTEUS LINEATUS*, *n. sp.*

D. $1\frac{1}{4}$ 1/11. A. 18. L. lat. 30.

The same very compressed form as *A. Fitzroyensis*, mouth, head and eye also almost the same, height of body one-third of length without the caudal fin. Scales cycloid, larger behind than in front; the rays of the dorsal fins mostly ending in filaments, but not much prolonged; caudal fin rather long, emarginate. Silvery: with a broad blackish band along the middle of each side, with faint traces of a similar band on the back and belly; the dorsal, caudal, and pectoral fins faintly marked with black; the ventrals with the outer ray and the anal with the margin, deep black; the membranes of both of a carmine red tinge.

Richmond River. Length three inches.

Genus *CALLIONYMUS*, L.

Head and anterior part of the body depressed, the rest subcylindrical, naked. Head triangular, with the cleft of the mouth narrow, horizontal, and with the upper jaw very protractile. Eyes of moderate size, more or less directed upwards. Teeth

very small, palate smooth. A strong spine at the angle of the præoperculum. Two dorsal fins, the anterior with three or four flexible spines; ventrals five-rayed, widely apart from each other. Gill-openings very narrow, generally reduced to a foramen on the upper side of the operculum; branchiostegals six; air-bladder none; pseudobranchiæ; a slit behind the fourth gill.

Fishes of nearly all seas, living on the bottom near the shore.

540. *CALLIONYMUS CALAUROPOMUS*, Richards.

Voy. Erebus and Terror, Fishes, p. 10, pl. 7, f. 4-5.—Gunth., Cat. Fishes III., p. 147.

D. 4/8. A. 7. C. 10.

Branchial foramen large, immediately above the extremity of the operculum; præopercular spine bifid and curved upwards at the apex. Dorsal fins not elevated; lateral line wavy; the middle rays of the caudal fin very elongate in the male. Bronze-coloured (in spirits), clouded with darker, dorsal fins spotted,

North-west Australia. Port Jackson. Port Phillip.

541. *CALLIONYMUS PAPILO*, Gunth.

Ann. and Mag. Nat. Hist., 1864, Vol. XIV., p. 197.

Callionymus ocellifer, Casteln., Proc. Zool. Soc., Victoria, II., p. 49.

D. 4/7. A. 6. C. 11.

Præopercular spine considerably shorter than the head, bifid at its extremity, both points directed upwards. The rays of the vertical fins long, those of the second dorsal longer than those of the first, and nearly equal in length to the middle caudal rays, which are not quite half as long as the body; the last anal ray prolonged. The ventral fin extends beyond the origin of the anal. Body light brownish marbled with darker; the lower part of the sides of the trunk and tail with numerous pearl-coloured vertical lines; belly pearl-coloured. Sides of the head with numerous small white ocelli, edged with violet. Both dorsal fins

with large, irregular, rounded, whitish spots, each with a narrow violet edge; there are fine white dark edged lines and dots within the large spots; a narrow black, blue edged spot behind the the extremity of the first dorsal spine. Caudal and pectoral fins with white dots, which are mixed with brown ones on the lower half of the caudal. Oblique pearl coloured lines behind each anal ray.

Melbourne.

542. *CALLIONYMUS CALCARATUS*, *n. sp.*

D. 4/9. A. 8. C. 10.

Branchial foramen transversely oval, about as far apart as each is distant from the præopercular spine and much in advance of the first dorsal fin. Head very flat; eyes close together; snout rather truncately pointed; præopercular spine longer than the longest diameter of the eye, strong, flat, with a strong spur on the posterior half of the outer side pointing backwards, and three on the inner side pointing inwards and backwards. Lateral line wavy. Last dorsal ray somewhat prolonged. Tail elongate, pointed. Colour cinerous, speckled and marbled faintly with reddish-brown, yellow beneath; the first dorsal fin hyaline with a large, irregular, black or cyaneous blotch in the centre, the second dorsal and caudal distantly spotted with brown. Ventrals and the rays of the anal blackish. Length seven inches.

Port Jackson.

543. *CALLIONYMUS LATERALIS*, *n. sp.*

D. 4/8. A. 8.

Branchial foramen small, opening over the operculum only a little in advance of the first dorsal fin. Head rather flat, eyes close together, their diameter rather longer than the snout, which is rounded and narrowed in front. Præopercular spine scarcely as long as the diameter of the eye, strong, rather flat, curved

backwards and upwards into an acute spine at its extremity and with a broad, triangular, flat, spine on the inner side near the apex. Caudal fin pointed and rather long; ventrals large, reaching the second anal ray. Colour yellowish or reddish-yellow; minutely dotted with white, and with many indistinct ocellated spots; a line of about a dozen pearl-white, roundish spots along the side of the abdomen under the lateral line, which is extremely crooked. The first dorsal fin barred with blackish, the second and caudal spotted, the anal blackish. Under three inches in length.

Port Jackson.

NOTES AND EXHIBITS.

Mr. Brazier exhibited many specimens of a *Filaria* taken from imported Salt Herrings.

WEDNESDAY, DECEMBER 29TH, 1880.

W. J. Stephens, Esq., M.A., Vice President, in the Chair.

DONATIONS.

Proceedings Royal Microscopical Society, Vol. III., parts 4—5, from the Society.

Eucalyptographia, Decade VII., from Baron F. von Muller, K.C.M.G., etc.

Palæontology of New Zealand, Part IV.

Monograph of Strombid Del. Mar. Rossa, 1876, by Issel and Tapparone Canefri.—Pars III. and IV., Contribuzioni per una Fauna Malacologique delle isole Papuane, by T. Canefri, 1876-77. —Intorno ad Alcune Specie di Testacei Marini mal conosciute o